SIEMENS

Stock Catalog

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and Switch
RELAY SPECIALTIES INC.

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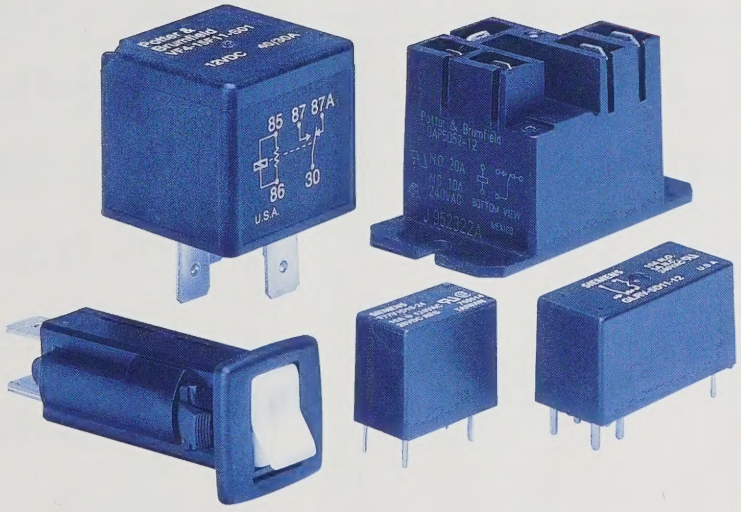


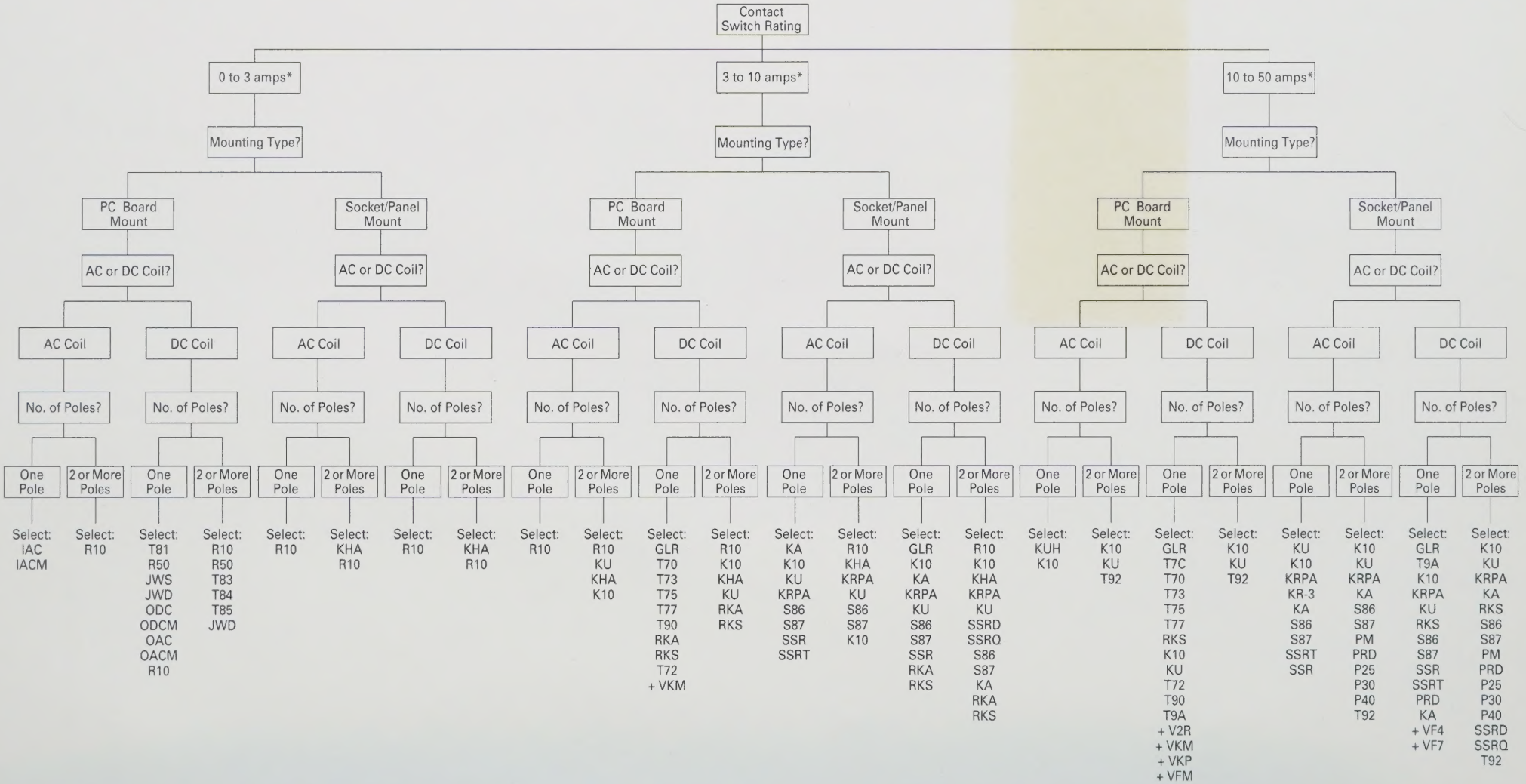
Relays and Circuit Breakers

Potter & Brumfield Products Division
Siemens Electromechanical Components, Inc.

Potter & Brumfield Products Division Relay Question Tree

This guide helps the user select one or more relay series which may be appropriate for a given application. The user should then refer to the detailed specifications elsewhere in this catalog to determine the actual part number to be specified. Of course, the user must assume ultimate responsibility for determining the suitability of a relay for a particular application.

Many special function relays such as time delay relays and latching relays are not included in this guide. Additionally, several relay product families are quite broad (i.e., R10, KU), and only the basic family designator, not the actual product series designator (i.e., R10S, KUIP) is listed in this guide.


Contact Switch Rating
0 to 3 amps*
3 to 10 amps*
10 to 50 amps*
Mounting Type?
PC Board Mount
Socket/Panel Mount
AC or DC Coil?
AC Coil
DC Coil
No. of Poles?
One Pole
2 or More Poles
Select: IAC IACM
Select: R10
Select: T81 R50 JWS JWD ODC ODCM OAC OACM R10
Select: R10 R50 T83 T84 T85 JWD
Select: R10
Select: KHA R10
Select: R10
Select: KHA R10
Select: R10
Select: R10 KU KHA K10
Select: GLR T70 T73 T75 T77 T90 RKA RKS T72 + VKM
Select: R10 K10 KHA KU RKA RKS
Select: KA K10 KU KRPA S86 S87 SSR SSRT
Select: R10 KHA KRPA KU S86 S87 K10
Select: GLR K10 KA KRPA KU S86 S87 SSR RKA RKS
Select: R10 K10 KHA KRPA KU SSRD SSRQ S86 S87 KA RKA RKS
Select: KUH K10
Select: K10 KU T92
Select: GLR T7C T70 T73 T75 T77 RKS K10 KU T72 T90 T9A + V2R + VKM + VKP + VFM + VF4 + VF7
Select: K10 KU T92
Select: KU K10 KRPA KR-3 KA S86 S87 SSRT SSR
Select: K10 KU KRPA KA S86 S87 PM PRD P25 P30 P40 T92
Select: GLR T9A K10 KRPA KU RKS S86 S87 SSR SSRT PRD KA + VF4 + VF7
Select: K10 KU KRPA KA RKS S86 S87 PM PRD P25 P30 P40 SSRD SSRQ T92

* Typical loads at 28VDC, 120VAC, resistive. Solid state relays typically output AC loads only.
\+ Automtive relays typical 16VDC resistive.

Potter & Brumfield Products Division
Siemens Electromechanical Components, Inc.
Stock Catalog

This edition of our Stock Catalog includes basic specification information for a broad selection of switching components. Electromechanical relays, contactors, time delay relays, solid state relays, input/output modules, sensors, magnetic circuit breakers, thermal circuit breakers and accessories are all described in the catalog.

The front section of this catalog, the selector guide, provides an overview of the various series in our extensive stock product line. This general specification information is intended to help you quickly determine which product series may be best suited for a given application.

The back section of the catalog lists, by series, stock part numbers and data specific to those part numbers. The sequence of series in the part number listing section is the same as that used in the selector guide section. Additional specification details such as wiring diagrams and mounting information are included with the part number listings.

For each series, the last cell in the vertical column of data in the selector guide lists the page number in the back section of the catalog where part number listings for a particular series may be found

If you require more detailed specifications for a given series, you may request information through our automated fax-on demand system from any touch tone telephone in the United States or Canada. Simply call 812-386-2561 and follow the prompts using your telephone keypad. The next to last cell in each vertical column of the selector guide lists the fax document number for a given series. When prompted, enter the fax document number for the series in which you are interested. The system will automatically send the data you request to your fax machine.

Of course, your sales representative or local authorized P&B distributor can also help you with price, delivery and specification details. For the name and telephone number of the sales representative serving your area, see the listing on pages 15 and 16.

We constantly endeavor to enhance the quality of our products and update our stock product offering; therefore, specifications and product availability are subject to change without notice.

Warranty

Siemens Electromechanical Components, Inc., ("Seller"), warrants ALL PRODUCTS including but not limited to those manufactured to specifications supplied to it for a period of one year from date of delivery to (a) distributor's vendee, or (b) purchaser other than distributor buying direct from manufacturer, as the case may be, to be free from defects in workmanship and materials. Any defect appearing beyond the specified warranty period shall be deemed to be due to ordinary wear and tear. Seller, however, assumes no risk or liability for results of the use of products purchased from it, including without limitation: (1) the use in combination with any electrical or electronic components, circuits, systems, assemblies, or any other materials or substances; (2) unsuitability of any product for use in any circuit or assembly or environment. Purchaser's rights under this warranty shall consist solely of requiring Seller to repair, or at Seller's sole discretion, replace, free of charge, F.O.B. factory, any defective items received at said factory within said warranty period and determined by Seller to be defective. The giving of or failure to give any advice or recommendation by Seller shall not constitute any warranty or impose any liability upon Seller. The foregoing constitutes the sole and exclusive remedy of the Purchaser and the exclusive liability of the Seller, AND IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, DESCRIPTION, QUALITY, PRODUCTIVENESS, OR ANY OTHER MATTER. In no event shall Seller be liable for compensatory, special or consequential damages or for delay in performance of this warranty.

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Contact Material Abbreviations Used In This Catalog

Ag is silver.
AgCdO is silver-cadmium oxide alloy.
AgNi 0.15 is fine silver.
AgNi is silver-nickel alloy.
AgSn is silver-tin alloy.
Au is gold.
AuAgNi is gold-silver-nickel alloy.
AuPtAg is gold-platinum-silver alloy.
PdAg is palladium-silver alloy.
Rh is rhodium.
Ru is ruthenium.

Dimensions in this catalog are given as: inches (mm) or inches (mm).

Symbols used to denote approval agency listing.

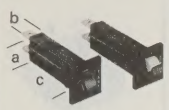
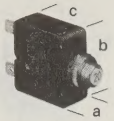
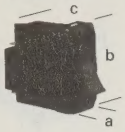
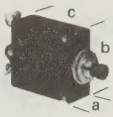
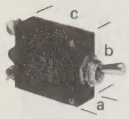
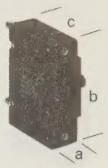
Logos of Various Approval Agencies/Laboratories Used in This Catalog

- – UL Recognized
- – UL Listed
- – CSA Certified
- – CSA Component Acceptance
- – UL Recognized Component for Canada
- – SEV Approved
- – TUV Approved
- – VDE Approved
- – DEMKO Approved

Certain products may be assembled outside the United States of America.

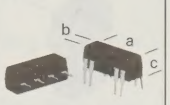
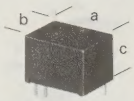
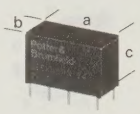
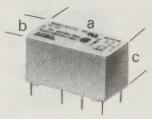
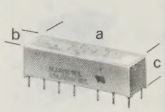
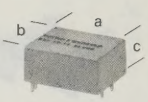
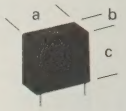
• Denotes UL ¤ Denotes UL Listed § Denotes SEV Δ Denotes VDE » Denotes UL Rec.
* Denotes CSA # Denotes CSA Accept. ◊ Denotes TUV ° Denotes DEMKO Com./Canada

Circuit Breakers

	NEW VERSION		*NEW*				
							
Series	**W28**	**W58**	**W33**	**W23**	**W31**	**W6**	**W9**
Type	Thermal	Thermal	Thermal	Thermal	Thermal	Magnetic	Magnetic
Features	• On/off switchable option offered • Replaces slow blow glass cartridge fuse and holder • Snap-in mounting • Button/rocker provides visible trip indication • Push-to-reset	• Quick connect or screw terminals • Button extends for visible trip indication • Push-to-reset operation	• Rocker actuator in various colors • Convenient, snap-in mounting • Optional lighted rockers • Models with aux. switch available • Designed to meet IEC and VDE requirements.	• Push/pull actuation for manual on/off and reset	• Toggle actuation for manual on/off and reset	• Compact design • Variety of time delay options • Toggle actuation for manual on/off and reset • Optional aux. switch	• Variety of time delay options • Toggle actuation for manual on/off and reset
Approximate Size and Weight (per pole)	a b c .54" x .63" x 1.54"d (13.7 x 15.9 x 39.0d) .35 oz. (10g)	a b c .66" x 1.38" x 1.38"d (16.8 x 34.9 x 34.9d) 1.5 oz. (43g)	a b c .98" x 1.89" x 1.72"d (24.9 x 48 x 43.8d) 1.2 oz. (35g)	a b c .69" x 1.38" x 1.6"d (17.5 x 34.9 x 40.6d) 2 oz. (57g)	a b c .69" x 1.38" x 1.6"d (17.5 x 34.9 x 40.6d) 2 oz. (57g)	a b c .75" x 2.0" x 1.64"d (19.1 x 50.8 x 42.1d) 2.5 oz. (71g)	a b c .75" x 2.5" x 2.1"d (19.1 x 63.5 x 53.0d) 2.5 oz. (71g)
No. of Poles	1	1	1 or 2	1	1	1 through 4	1 through 4
Circuit Function	Series Trip	Series Trip	Series Trip, both poles or Series Trip, one pole: Switch only, one pole	Series Trip	Series Trip	Series Trip w/ or w/o Aux. Switch	Series Trip
Current Rating	0.25-15 Amps	1-35 Amps	5-20 Amps	1-50 Amps	1-50 Amps	1-30 Amps	1-50 Amps
Max. Operating Voltage	32VDC 250VAC	50VDC 250VAC	50VDC 250VAC	50VDC 250VAC	50VDC 250VAC	65VDC 277VAC	65VDC 277VAC
Trip Time at 200% of Rating	0.25-2A Models – 4.5 to 28 Sec. 3-15A Models – 2.2 to 15 Sec.	1-4A Models – 10 to 45 Sec. 5-35A Models – 6 to 30 Sec.	10 to 30 Sec.	1-4A Models – 11 to 30 Sec. 5-35A Models – 6 to 22 Sec.	1-4A Models – 11 to 30 Sec. 5-35A Models – 6 to 22 Sec.	30ms to 100 Sec. depending upon trip curve specified.	30ms to 100 Sec. depending upon trip curve specified.
Interrupt Capacity	1,000A @ 32VDC or 250VAC	2,000A @ 50VDC 1,000A @ 250VAC	1,000A @ 50VDC 2,000A @ 250VAC	1-25A Models – 2,000A @ 50VDC 1,000A @ 250VAC 30-50A Models – 1,000A @ 50VDC or 250VAC	1-25A Models – 2,000A @ 50VDC 1,000A @ 250VAC 30-50A Models – 1,000A @ 50VDC or 250VAC	1-20A Models – 2,000A @ 65VDC 5,000A @ 277VAC 21-30A Models – 2,000A @ 65VDC 2,500A @ 277VAC	2,000A @ 65VDC 5,000A @ 277VAC
Terminal Options	.250" (6.35) Quick Connect (Do not solder)	.250" (6.35) Quick Connect, #6-32 Screw	.250" (6.35) Quick Connect, Solder	#8-32 Screw	#8-32 Screw	.250" (6.35) Quick Connect, #10-32 Screw	#10-32 Stud
Mounting Options	Snaps into 5/8" (15.9) panel cutout from the front	7/16"–28 Threaded Bushing, 15/32"–32 Threaded Bushing	Snaps into .875 x 1.75" (22.2 x 44.5) panel cutout from the front	3/8"–24 Threaded Bushing	15/32"–32 Threaded Bushing	#6-32 Tapped Holes	#6-32 Tapped Holes
Page Number	17	17	17	17	17	17	18
Fax Document #	9280	9580	9330	9230	9230	9699	9699

Specifications and/or agency recognitions do not necessarily apply to all models within a particular series.
When multiple ratings are listed, no individual rating may be exceeded by the combination of others.

Printed Circuit Board Relays

							NEW 
Series	**JWD/JWS**	**T81**	**T85**	**T83**	**T84**	**R50**	**T77**
Features	• **3 - 10W rating** • Low cost dry reed • DIP and SIP configurations • Molded package • Wave solderable and immersion cleanable • Optional coil suppression diode	• **0.5 - 1A rating** • Miniature, high density package • Sealed, immersion cleanable case • Sensitive coil & high dielectric options • Meets FCC Part 68 isolation	• **1.25 - 2A rating** • Miniature, DIP relay • High sensitivity coil • Sealed, immersion cleanable case • DIP terminal arrangement • Meets FCC Part 68 isolation	• **2A rating** • Miniature, telecom relay • Meets FCC Part 68 isolation • Latching & non-latching • Sealed, immersion cleanable case • Sensitive coil types	• **1A rating** • Miniature, telecom relay • Meets FCC Part 68 isolation • Latching & non-latching • Sealed, immersion cleanable case • Sensitive coil types	• **1- 5A rating** • Low profile package • Tape sealed, immersion cleanable case	• **3 - 10A rating** • Small size • 4,000 Vrms coil-to-contact breakdown • Sealed or flux tight case
Approximate Dimensions	a b c .77" x .30" x .315"h (19.6 x 7.62 x 8.0h) 0.08 oz. (2g)	a b c .61" x .45" x .43"h (15.4 x 11.4 x 11.0h) 0.14 oz. (4g)	a b c .79" x .39" x .49"h (20.1 x 10.0 x 12.4h) 0.16 oz. (4.5g)	a b c .79" x .39" x .42"h (20.1 x 10.0 x 10.6h) 0.18 oz. (5g)	a b c 1.4" x .40" x .40"h (35.4 x 10.1 x 10.1h) 0.25 oz. (7g)	a b c 1.09" x .60" x .46"h (27.7 x 15.7 x 11.7h) 0.3 oz. (8.5g)	a b c .72" x .39" x .57"h (18.2 x 10.0 x 14.7h) 0.36 oz. (9g)
Contact Arrangements	1 Form A, 1 Form B, 1 Form C, 2 Form A	1 Form C	2 Form C	2 Form C	4 Form C	1 Form C, 2 Form C	1 Form A
Contact Material	Ru	Au overlay, PdAg	Au overlay, PdAg & PdAg, Au overlay AgNi	Au overlay, Ag & PdAg	Au overlay, PdAg	Ag AgCdO	Ag Ag Alloy
Maximum Contact Rating	10W (Form A & B) 3W (Form C)	1A @ 24VDC or 0.5A @ 120VAC, resistive	2A, AC or DC 150VDC, 125VAC 30W or 62.5VA, resistive	2A, AC or DC 250VDC, 220VAC 50-150W or 250VA, resistive	1A, AC or DC 120VAC or VDC 24W or 60VA, resistive	2A @ 28VDC or 1A @ 120VAC 5A @ 28VDC or 2.5A @ 120VAC, resistive	3A @ 28VDC or 250VAC 10A @ 28VDC or 120VAC
Expected Mechanical Life	1×10^8 Ops.	5×10^6 Ops.	1×10^7 Ops.	2×10^7 Ops.	2×10^7 Ops.	1×10^7 Ops.	1×10^7 Ops.
Expected Electrical Life at Rated Load	1×10^6	1.5×10^5 @ 1A, 24VDC 1×10^5 @ 0.5A, 120VAC	5×10^5 @ 1A, 24VDC 2×10^5 @ 0.5A, 120VAC	3×10^5 @ 1.5A, 24VDC 1×10^5 @ 1A, 120VAC	5×10^5 @ 1A, 24VDC 2×10^5 @ 0.5A, 120VAC	1×10^5 @ 2A, 28VDC and 1A, 120VAC 6×10^5 @ 5A, 28VDC and 2.5A, 120VAC	1×10^5
Nominal Coil Voltage	5-24VDC	5-24VDC	4.5-48VDC	5-48VDC	3-48VDC	5-48VDC	5-24VDC
Nominal Coil Power	50-288mW	(standard) 450mW (sensitive) 200mW	150-580mW	75-400mW	90-400mW	0.75-1.3W	200-450mW
Mounting Options	PC board	PC board, Socket	PC board, Socket	PC board, Socket	PC board, Socket	PC board	PC board
Sockets / Connectors	Fits 14-pin IC socket	Fits 12-pin IC socket	Fits 16-pin IC socket	Fits 16-pin IC socket	Fits 28-pin IC socket	–	–
Page Number	18	18	18	19	19	19	19
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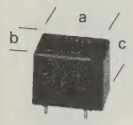
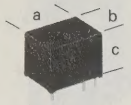
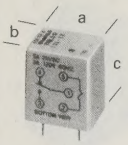
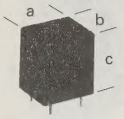
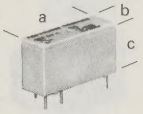
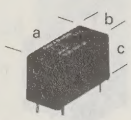
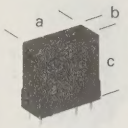
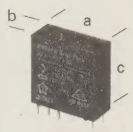
Printed Circuit Board Relays

	NEW			NEW		NEW		
								
	T72	**T73**	**T70**	**T7C**	**T75**	**GLR**	**RKS**	**RKA**
	• **10A rating** • Low-profile • Sealed case • UL478 & UL508 • Class A coil insulation	• **1- 10A rating** • Low-profile relay • Sealed case • UL478 & UL508 • Sensitive coil available • Class A or B coil insulation • UL873 spacing available	• **10A rating** • Low cost • TV5 contact rating • 1,500 Vrms coil-to-contact breakdown • Class B coil insulation • Immersion cleanable case	• **12A rating** • Compact design • 1,500 Vrms coil-to-contact breakdown • Immersion cleanable case	• **8 - 14A rating** • Meets internationalspecifications • Sensitive coil • Low profile design • Immersion cleanable case	• **16A rating** • Immersion cleanable or flux-tight case • Low profile design • Meets 8mm spacing and 5kV isolation	• **10 - 20A rating** • 0.6 in³ (10cm³) package • Tape sealed, immersion cleanable case • Meets 8mm spacing and 4kV isolation	• **10A rating** • 0.6 in³ (10cm³) package • Immersion cleanable case • Meets 8mm spacing and 4kV isolation • TV-3 and TV-5 ratings
a b c	.87" x .63" x .65"h (22.0 x 16.0 x 16.4h) 0.4 oz. (12g)	.84" x .65" x .58"h (21.3 x 10.7 x 14.7h) 0.28 oz. (8g)	.88" x .65" x .95"h (22.4 x 16.4 x 24.0h) 0.42 oz. (12g)	.80" x .65" x .81"h (20.3 x 16.5 x 20.6h) 0.42 oz. (12g)	1.18" x .39" x .59"h (30 x 10 x 15h) 0.65 oz. (18.5g)	1.14" x .49" x .59"h (29 x 12.5 x 15h) 0.65 oz. (18.5g)	1.15" x .51" x 1.03"h (30 x 13 x 27h) 0.65 oz. (18.5g)	1.15" x 51" x 1.03"h (29.2 x 13 x 26.2h) 0.65 oz. (18.5g)
	1 Form C	1 Form A, 1 Form C	1 Form C	1 Form C	1 Form C	1 Form A, 1 Form C	1 Form A, 2 Form A, 1 Form C, 2 Form C	1 Form A, 2 Form A, 1 Form C, 2 Form C
	AgCdO	Au overlay PdAg Au overlay AgNi AgSn	Au flashed Ag AgCdO	AgCdO	AgCdO	AgCdO	AgCdO	AgNi AgCdO
	10A @ 28VDC or 120VAC 5A @ 240VAC	1A @ 30VDC or 120VAC 6A @ 24VDC or 120VAC 10A @ 24VDC or 120VAC	5A @ 28VDC or 120VAC 10A @ 28VDC or 120VAC 5A tungsten @ 120VAC 1/4 HP @ 120 VAC	10A @ 250VAC or 28VDC 12A @ 120VAC	14A @ 120VAC, resistive 10A @ 240 VAC 8A @ 24VDC	16A @ 240VAC 30 LRA, 10FLA @ 120VAC 1/3HP @ 240VAC	10A @ 30VDC or 277VAC 20A @ 24VDC or 277VAC UL TV-5	5 to 10A @ 24VDC or 240VAC UL TV-3 and TV-5
	1×10^7 Ops.	2×10^7 Ops.	1×10^7 Ops.	1×10^7 Ops.	2×10^7 Ops.	3×10^7 Ops.	1×10^6 Ops.	5×10^6 Ops.
	1×10^5	1×10^5	7.5×10^4 @ 5A, 28VDC or 120VAC 5×10^4 @ 10A, 28VDC or 120VAC	1×10^5 Ops.	5×10^4	1×10^5 @ 10A 28VDC or 240VAC 2×10^4 @ 16A, 240VAC	1×10^5 @ 10 A, 30VDC or 277VAC 2×10^4 @ 20 A, 277VAC	1×10^5
	5-24VDC	5-48VDC	5-48VDC	6-24VDC	3-60VDC	5-48VDC	5-48VDC	5-48VDC
	360mW	330-650mW	360mW	360mW	230mW	525mW	520mW	530-720mW
	PC board	PC board	PC board	PC board	PC board	PC board	PC board	PC board
	–	–	–	–	–	Screw terminal, PC terminal	Screw terminal, PC terminal	Screw terminal, PC terminal
	19	20	20	20	20	20	20	21
	8720	8730	8700	8702	8750	4570	7570	7520

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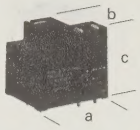
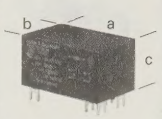
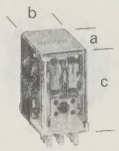
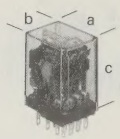
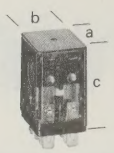
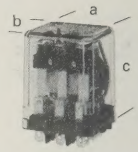
	P. C. Board Relays				General Purpose Relays		
		NEW 					
Series	**T90**	**T9A**	**T92**	**R10**	**KH/KHA**	**K10**	**KUP**
Features	• **30A rating** • Less than 1W coil power requirement • Class F insulation • Open, dust cover or tape sealed, immersion cleanable case	• **30A rating** • QC and PC terms. • Meets UL 873 and UL 508 spacings • Optional flanged case for panel mounting • Safety wells accept insulated female quick connects	• **30A rating** • Two pole unit can break both sides of the AC line • PC board or panel mount • Ideal for HVAC and appliance apps. • Meets 8mm spacing	• **0 - 7.5A rating** • Up to 8 poles • Highly sensitive coils available • Many contact options • Various case, terminal and mounting styles	• **0 - 5A rating** • Compact package • 4PDT • Smoked dust cover • Various mounting configurations • Indicator lamp available • Hermetically sealed case option	• **15A rating** • Compact package • DPDT • Smoked dust cover • Various mounting configurations • AC and DC coils	• **10A rating** • Plain or bracket mount dust covers • Optional indicator lamp and push-to-test button • Several socket styles
Approximate Dimensions	a b c 1.20" x .95" x .67"h (30.5 x 24.1 x 16.9h) 0.9 oz. (26g)	a b c 1.27" x 1.08" x 1.10"h (32.3 x 27.4 x 27.9h) .9 oz. (26g)	a b c 2.03" x 1.33" x 1.20"h (51.6 x 33.8 x 30.5h) 3 oz. (86g)	a b c 1.17" x .74" x 1.18"h (29.6 x 18.7 x 30.2h) 1.0 oz. (28g)	a b c 1.11" x .86" x 1.28"h (28.2 x 21.8 x 34.9h) 1.6 oz. (45g)	a b c 1.11" x .86" x 1.28"h (28.2 x 21.8 x 34.9h) 1.8 oz. (51g)	a b c 1.53" x 1.41" x 1.91"h (38.9 x 35.7 x 48.4h) 3 oz. (85g)
Contact Arrangements	1 Form A, 1 Form C	1 Form A, 1 Form C	2 Form A, 2 Form C	1 Form C to 8 Form C	2 Form C, 4 Form C	2 Form C	1 Form C to 4 Form C
Contact Material	Ag AgCdO	AgCdO	AgCdO	AgCdO, Ag, Au overlay Ag, AuPtAg	Ag, AgCdO, AuAgNi, Au overlay Ag, Au diffused Ag	AgCdO	Ag AgCdO
Maximum Contact Rating	30A @ 240VAC 20A @ 28VDC 6A @ 277VAC 2 HP @ 240VAC	30A @ 240VAC 20A @ 28VDC 10A @ 277VAC 98LRA/22FLA @ 120VAC 2 HP @ 240VAC	30A @ 277VAC 20A @ 28VDC 10A @ 600VAC TV10A @ 120VAC 2.5 HP @ 240VAC 1 HP @ 120VAC	Dry circuit to 7.5A @ 28VDC or 115VAC 1/8HP @ 110-120VAC 1/6HP @ 220-240VAC	Dry circuit to 5A @ 28VDC or 240VAC 1/10HP @ 120-240VAC	15A @ 30VDC or 120VAC 10A @ 277VAC 1/3HP @ 120VAC 1/2HP @ 240VAC	5A @ 28VDC or 240VAC 10A @ 28VDC or 240VAC 1/3HP @ 120VAC 1/2HP @ 250-600VAC
Expected Mechanical Life	1×10^7 Ops.	1×10^7 Ops.	5×10^6 Ops.	1×10^8 Ops.	1×10^7 Ops.	1×10^7 Ops.	1×10^7 Ops.
Expected Electrical Life at Rated Load	1×10^5	1×10^5	1×10^5 Ops.	2×10^4 to 6×10^5	1×10^5	1×10^5	1×10^5
Nominal Coil Voltage	5-110VDC	12-24VDC	5-110VDC 24-277VAC	3-115VDC 24-115VAC	5-110VDC 6-120VAC	6-110VDC 6-240VAC	5-110VDC 6-240VAC
Nominal Coil Power	870-930mW	1.0W	1.7W (DC) 4.0VA (AC)	36mW to 1.6W (DC) 1.5VA (AC)	900mW (DC) 1.2VA (AC)	900mW (DC) 1.2VA (AC)	1.2-1.8W (DC) 2.0-2.7VA (AC)
Mounting Options	PC board	PC board, Panel mount	PC board Panel mount	Socket, Panel mount, PC board	Socket, Panel mount, PC board	Socket, Panel mount, PC board	Socket, Panel mount, PC board
Sockets / Connectors	–	–	–	Screw terminal, Solder terminal, PC terminal	Screw terminal, Solder terminal, PC terminal	Screw terminal, Solder terminal, PC terminal	Screw terminal, Solder terminal, PC terminal, Quick connect terminal
Page Number	21	22	22	22	24	25	25
Fax Document #	8900	8901	8920	7100	5420	5100	5870

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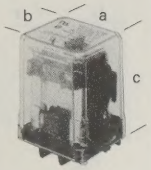
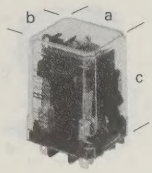
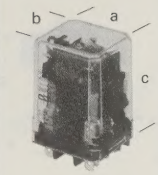
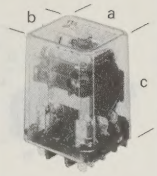
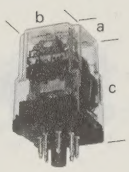
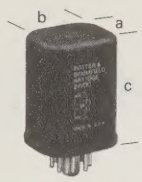
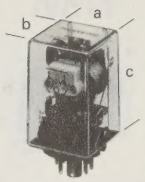
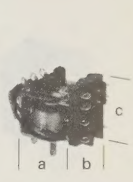
General Purpose Relays

	KUEP	KUIP	KUGP	KUMP	KRP/KRPA	KR–E	KR–3H	KA
								
	• **10A rating** • Switches DC currents • Magnetic blowout • Plain or bracket mount dust covers	• **10A rating** • 8mm coil-to-contact spacing • VDE approved design • Plain or bracket mount dust covers • Several socket styles	• **10A rating** • 3mm contact gap • 8mm coil-to-contact spacing • VDE approved design • Bracket mount dust cover • Several socket styles	• **15A rating** • Plain dust cover • Several socket styles	• **10A rating** • Octal-type plug • Dust cover • Optional indicator lamp	• **10A rating** • Hermetically sealed steel case for use in hazardous locations • Octal-type plug	• **20A rating** • Available with dust cover and octal-type plug or as an open-style relay	• **10A rating** • Compact, open-style relay • Ruggedly constructed • Cost effective • Highly efficient for switching light power loads
	a b c 1.53" x 1.41" x 1.91"h (38.9 x 35.7 x 48.4h) 3 oz. (85g)	a b c 1.53" x 1.41" x 1.91"h (38.9 x 35.7 x 48.4h) 3 oz. (85g)	a b c 1.53" x 1.41" x 1.91"h (38.9 x 35.7 x 48.4h) 3 oz. (85g)	a b c 1.53" x 1.41" x 1.91"h (38.9 x 35.7 x 48.4h) 3 oz. (85g)	a b c 1.41" x 1.41" x 2.00"h (35.7 x 35.7 x 50.8h) 3 oz. (85g)	a b c 1.44" x 1.66" x 2.12"h (36.6 x 42.2 x 53.8h) 4.8 oz. (136g)	a b c 1.53" x 1.41" x 2.28"h (38.9 x 35.7 x 57.9h) 2 oz. (57g)	a b c 1.92" x 1.47" x 1.38"h (48.8 x 37.3 x 34.9h) 1.7 oz. (48g) - KA
	1 Form X, 2 Form A, 2 Form C	1 Form C to 3 Form C	2 Form A	2 Form C to 3 Form C	1 Form C to 3 Form C	2 Form C to 3 Form C	1 Form X	1 Form C to 3 Form C
	AgCdO	AgCdO	AgCdO	AgCdO	Ag AgCdO	Ag AgCdO	AgCdO	Ag AgCdO
	10A @ 150VDC (1X) 5A @ 150VDC (2A) 3A @ 150VDC (2C)	10A @ 28VDC or 240VAC 1/3HP @ 120VAC 1/2HP @ 250-600VAC	10A @ 28VDC or 240VAC 1/3HP @ 120VAC 1/2HP @ 250-600VAC	15A @ 277VAC 10A @ 28VDC or 240VAC 1/3HP @ 120VAC 1/2HP @ 250-600VAC	5A @ 28VDC or 120VAC 10A @ 28VDC or 240VAC 1/3HP @ 120VAC 1/2HP @ 240VAC	5A @ 28VDC or 120VAC 10A @ 28VDC or 240VAC 1/3HP @ 120VAC 1/2HP @ 240VAC	20A @ 120VAC 1 HP @ 120/240VAC	5A @ 120VAC 10A @ 120VAC 6A @ 240VAC 1/6HP @ 120VAC 1/3HP @ 240VAC
	1 x 10^7 Ops.	1 x 10^7 Ops.	1 x 10^7 Ops.	1 x 10^7 Ops.	1 x 10^7 Ops.	1 x 10^7 Ops.	2.5 x 10^6 Ops.	1 x 10^7 Ops.
	1 x 10^5	1 x 10^5	1 x 10^5	1 x 10^5	1 x 10^5	1 x 10^5	1 x 10^5	1 x 10^5
	12-110VDC 120VAC	12-24VDC 120VAC	24VDC	12-110VDC 24-240VAC	6-110VDC 6-240VAC	12-24VDC 120VAC	12-24VDC 120VAC	6-110VDC 6-120VAC
	1.2-1.8W (DC) 2.0-2.7VA (AC)	1.2W (DC) 2.0-2.7VA (AC)	1.8W	1.2W (DC) 2.7VA (AC)	1.2W (DC) 2.0VA (AC)	1.2W (DC) 2.0VA (AC)	1.2W (DC) 2.0VA (AC)	1.2W (DC) 2.0VA (AC)
	Socket, Panel mount, PC board	Socket, Panel mount	Panel mount	Socket	Socket	Socket	Socket, Panel mount	Panel mount
	Screw terminal, Solder terminal, PC terminal, Quick connect terminal	Screw terminal, Solder terminal, PC terminal, Quick connect terminal	Screw terminal, Solder terminal, PC terminal, Quick connect terminal	Screw terminal, Solder terminal, PC terminal, Quick connect terminal	Screw terminal	Screw terminal	Screw terminal	–
	26	26	26	26	27	27	27	28
	5870	5870	5870	5870	5272	5272	5272	5272

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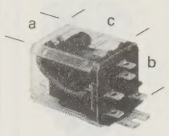
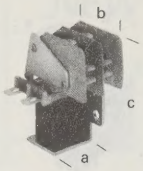
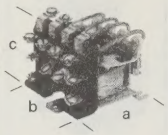
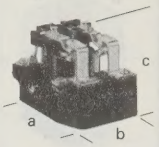
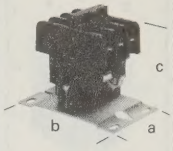
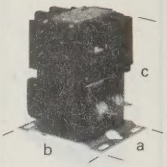
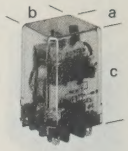
	Power Relays				Contactors		Latching Relay
							
Series	**KUHP**	**S86/S87**	**PM**	**PRD**	**P25**	**P30/P40**	**KUL**
Features	• **20 - 30A rating** • Various mounting options • 3,750Vrms coil-to-contact breakdown	• **20A rating** • Economical switching in a compact package • Choice of two mounting brackets	• **25A rating** • 4PDT • High dielectric strength • Screw or quick connect terminals • Dust cover available	• **30A rating** • High inrush capacity • Available with magnetic blowouts • Optional auxiliary switch	• **25A rating** • Control 3Ø loads • Field replaceable contacts • Universal mounting plate	• **30 - 40A rating** • P30 switches 30A • P40 switches 40A • Field replaceable contacts • Optional auxiliary switch • Universal mounting plate	• **10A rating** • Magentic latching relay • Single or dual coil • Good memory stability • Low power requirement • Various sockets available
Approximate Dimensions	a b c 1.53" x 1.41" x 1.91"h (38.9 x 35.7 x 48.4h) 3.2 oz. (92g)	a b c 1.31" x 2.07" x 2.42"h (33.3 x 52.6 x 61.5h) 2.9 oz. (82g)	a b c 3.39" x 2.66" x 2.72"h (86.2 x 67.5 x 69.1h) 14 oz. (397g)	a b c 3.38" x 2.51" x 2.50"h (85.7 x 63.8 x 63.5h) 10 oz. (284g)	a b c 2.50" x 3.80" x 3.33"h (64.8 x 96.5 x 63.5h) 14 oz. (397g)	a b c 2.55" x 3.80" x 3.98"h (67.3 x 96.5 x 101.1h) 28oz. (794g)	a b c 1.53" x 1.41" x 2.16"h (38.9 x 35.7 x 54.8h) 3.4 oz. (96g)
Contact Arrangements	1 Form C to 2 Form C	1 Form C, 2 Form C	4 Form C	1 Form A to 2 Form C	3 Form X	3 Form X to 4 Form X	1 Form C to 2 Form C
Contact Material	AgCdO	Ag & AgCdO	AgCdO	Ag AgCdO	AgCdO	AgCdO	AgCdO
Maximum Contact Rating	(1C) 30A @ 240VAC 25A @ 28VDC 1HP @ 120VAC (2C) 20A @ 240VAC or 28VDC 3/4HP @ 120VAC	20A @ 277VAC 1HP @ 125VAC 2HP @ 250VAC	25A @ 277VAC 10A @ 28VDC 1HP @ 240VAC	30A @ 277VAC 20A @ 125VDC 1.5HP @ 120VAC 2HP @ 250VAC	25FLA, 100LRA @ 600VAC 30A res. @ 600VAC	(P30) 30FLA, 120LRA @ 600VAC 40A res. @ 600VAC (P40) 40FLA, 160LRA @ 600VAC 50A res. @ 600VAC	10A @ 28VDC or 240VAC 1/4HP @ 120VAC 1/3HP @ 250-600VAC
Expected Mechanical Life	1×10^7 Ops.	1×10^6 Ops.	1×10^7 Ops.	2×10^6 Ops.	2×10^6 Ops. (DC coil) 5×10^6 Ops. (AC coil)	2×10^6 Ops. (DC coil) 1×10^7 Ops. (AC coil)	1×10^7 Ops.
Expected Electrical Life at Rated Load	1×10^5	5×10^4	1×10^7	1×10^5	5×10^5	2×10^5	1×10^5
Nominal Coil Voltage	12-24VDC 24-120VAC	12-24VDC 24-120VAC	12-110VDC 24-240VAC	12-110VDC 12-480VAC	12-24VDC 120-240VAC	24VDC 240VAC	12-24VDC 24-120VAC
Nominal Coil Power	1.2W (DC) 2.7VA (AC)	2.3-4.5W (DC) 4.0VA (AC)	4.4W (DC) 14VA (AC)	2.0W (DC) 8.0VA (AC)	4-8W (DC) 10VA (AC)	4-8W (DC) 10VA (AC)	1.2W (DC dual coil) 2.4W (DC single coil)
Mounting Options	Panel mount	Panel mount	Panel mount	Panel mount	Panel mount	Panel mount	Socket, Panel mount
Sockets / Connectors	–	–	–	–	–	–	Screw terminal, Solder terminal, PC terminal, Quick connect terminal
Page Number	28	28	28	28	29	29	29
Fax Document #	5840	7867	7600	7730	7250	7304	5850

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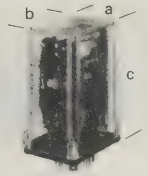
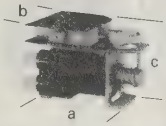
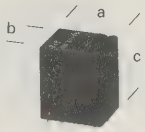
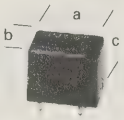
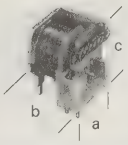
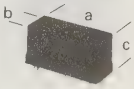
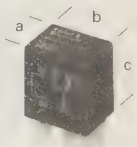
Latching Relays

Automotive Relays

						NEW 	
KBP	**S89/S90**	**Series**	**VKM**	**T72J/K/M**	**VKP**	**V2R**	**VFM**
• **10A rating** • Dual coil, mechanical latching relay • Clear dust cover with plug-in base • Up to 5 poles • Sockets available	• **15 - 20A rating** • Low cost, bistable, impulse relay • Optional dust cover with plug-in base • Up to 4 poles	**Features**	• **10A rating** • Miniature PC board relay • Available open or with sealed case • Various contact arrangements • Minimum PCB real estate	• **10A-20A rating** • Miniature PC board relay • Sealed case • High current version available	• **40A rating** • PC board relay • Available open or with sealed case • Various contact arrangements • Minimum PCB real estate	• **20A rating** • Motor reversing contact arragement • Sealed case • Miniature PC board relay • 105°C ambient	• **15A rating** • Miniature relay for plug-in or PC board mounting • Plastic enclosure
a b c 1.78" x 2.41" x 3.56"h (45.2 x 61.1 x 90.4h) 10.8 oz. (306g)	a b c 2.70" x 2.00" x 2.42"h (68.6 x 50.8 x 61.5h) 7.8 oz. (241g)	**Approximate Dimensions**	a b c .689" x .591" x .768"h (17.5 x 15.0 x 19.5h) 0.4 oz. (12g)	a b c .89" x .65" x .67"h (22.5 x 16.5 x 17h) 0.4 oz. (12g)	a b c .911" x .748" x .715"h (23.1 x 19.0 x 18.2h) 0.7 oz. (20g)	a b c 1.46" x .65" x .67"h (37.1 x 16.5 x 17h) 0.9 oz. (25g)	a b c .610" x .906" x 1.02"h (15.5 x 23 x 26h) 0.5 oz. (14g)
2 Form C to 5 Form C	1 Form C to 2 Form C	**Contact Arrangements**	1 Form C, 1 Form U	1 Form C	1 Form A, 1 Form C	2 x 1 Form C (H-Bridge)	1 Form C
Ag AgCdO	Ag AgCdO	**Contact Material**	AgNi 20	AgNi 0.15	AgNi 0.15 PdCu	AgNi 0.15	AgNi 20
5A @ 120VAC 10A @ 120VAC	(S89) 15A @ 250VAC 1/2 HP @ 125VAC (S90) 20A @ 277VAC 2 HP @ 250VAC	**Contact Rating @ 85°C (Form A contacts with nominal coil voltage)**	10A @ 14VDC	10A @ 14VDC, (T72J/K) 20A @ 14VDC, (T72M)	40A @ 14VDC	20A @ 14VDC	15A @ 14VDC
5 x 10^5 Ops.	1 x 10^5 Ops.	**Expected Mechanical Life**	1 x 10^7 Ops.	1 x 10^7 Ops.	5 x 10^6 Ops.	1 x 10^7 Ops.	1 x 10^7 Ops.
5 x 10^4	5 x 10^4	**Expected Electrical Life at Rated Load**	1 x 10^5	1 x 10^5	1 x 10^5	1 x 10^5	1 x 10^5
12-110VDC 120VAC	6-24VDC 24-120VAC	**Nominal Coil Voltage**	12VDC	12VDC	12VDC	12VDC	6, 12 & 24VDC
2.7W (DC) 5.3-7.8VA (AC)	6.33W (DC) 9VA (AC)	**Nominal Coil Power**	1.11W	.36W (T72J) .64W (T72K) .8W (T72M)	1.6W	.93W	1.2W (Form A) 1.5W (Form C)
Socket	Panel mount, Socket	**Mounting Options**	PC board	PC board	PC board	PC board	PC board, Plug-in
Screw terminal, Solder terminal	Screw terminal	**Sockets / Connectors**	—	—	—	—	PC terminal socket
29	29	**Page Number**	30	30	30	30	30
5270	7890	**Fax Document #**	8560	8725 (T72J/K) 8726 (T72M)	8570	8270	8360

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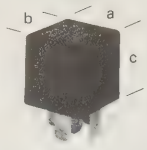
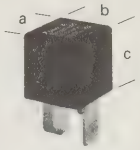
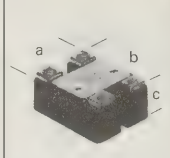
Automotive Relays

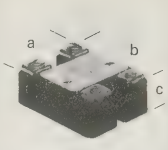


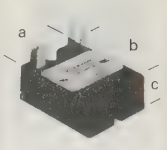


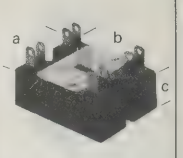
Series	VF4	VF7
Features	• **40A rating** • Plug-in or PC board mountable relay • Several enclosure options • Various contact arrangements • Optional mounting brackets	• **70A rating** • Plug-in or PC board mountable relay • 1 Form A contact arrangement • Optional mounting bracket
Approximate Dimensions	a b c 1.12" x 1.12" x .987"h (28.5 x 28.5 x 25.1h) 1.1 oz. (31g)	a b c 1.04" x 1.04" x .992"h (26.5 x 26.5 x 25.2h) 1.1 oz. (31g)
Contact Arrangements	1 Form A, 1 Form C	1 Form A
Contact Material	AgNi 0.15	AgNi 0.15
Contact Rating @ 85°C (Form A contacts with nominal coil voltage)	40A @ 14VDC	70A @ 14VDC
Expected Mechanical Life	1 x 10^7 Ops.	1 x 10^7 Ops.
Expected Electrical Life at Rated Load	1 x 10^5	1 x 10^5
Nominal Coil Voltage	12 & 24VDC	12VDC
Nominal Coil Power	1.6W	2.0W
Mounting Options	PC board, Plug-in, Bracket	PC board, Plug-in, Bracket
Sockets / Connectors	PC terminal socket, Wiring harness style connector with or without bracket	Wiring harness style connector
Page Number	30	31
Fax Document #	8340	8370

Solid State Relays









Series	SSRT	SSR	SSRD	SSRQ
Features	• **10 - 25A rating** • "Hockey Puck" package • Triac output • AC & DC input	• **25 - 125A rating** • "Hockey Puck" package • Inverse parallel SCR output • AC & DC input	• **25-40A rating** • Two independent solid state relays in one "Hockey Puck" package • Inverse parallel SCR output	• **20A rating per output** • Four independent solid state relays in one "Hockey Puck" package • Triac output
Approximate Dimensions	a b c 1.75" x 2.25" x .87"h (44.4 x 57.2 x 22h) 3.5 oz. (98g)	a b c 1.75" x 2.25" x .87"h (44.4 x 57.2 x 22h) 3.5 oz. (98g)	a b c 1.75" x 2.25" x .79"h (44.4 x 57.2 x 20h) 3.5 oz. (98g)	a b c 1.75" x 2.25" x .79"h (44.4 x 57.2 x 23.6h) 3.5 oz. (98g)
Switch Arrangement	1 Form A	1 Form A	(2) x 1 Form A	(4) x 1 Form A
Coupling	Optical	Optical	Optical	Optical
Input	3-32VDC 90-280VAC	3-32VDC 90-280VAC 3.5-26VDC Random	3-32VDC	3-32VDC
Output Switching	Zero	Zero, Random	Zero	Zero
Minimum Output Current	.05A	.05A	.05A	.05A
Maximum Output Current	25A	125A	40A	20A
Minimum Output Voltage	24V	24V	24V	24V
Maximum Output Voltage	240V	480V	240V	280V
Output Type	AC	AC	AC	AC
Terminals	Screw	Screw	Quick connect	Quick connect
Mounting	Chassis mount	Chassis mount	Chassis mount	Chassis mount
Page Number	31	32	32	32
Fax Document #	7778	7770	7773	7772

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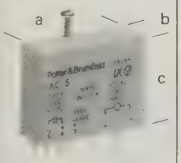
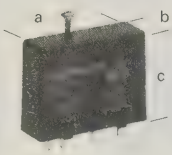
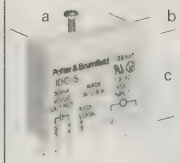
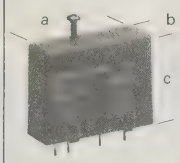
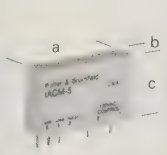
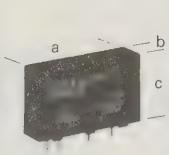
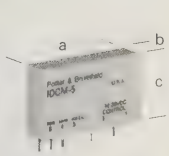
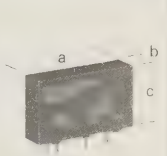
Solid State Input/Output Modules

							
IAC	**OAC**	**IDC**	**ODC**	**IACM**	**OACM**	**IDCM**	**ODCM**
• **0.05A rating** • AC input module • Industry standard 0.6" (15.2 mm) wide package • Series operation compatible	• **3-5A output rating** • AC output module • Industry standard 0.6" (15.2 mm) wide package • Series operation compatible	• **0.05A output rating** • DC input module • Industry standard 0.6" (15.2 mm) wide package • Series operation compatible	• **3A output rating** • DC output module • Industry standard 0.6" (15.2 mm) wide package • Series operation compatible	• **0.05A output rating** • Slim line AC input module • Only 0.4" (10.2 mm) wide package • Series operation compatible	• **3-5A output rating** • Slim line AC output module • Only 0.4" (10.2 mm) wide package • Series operation compatible	• **0.05A output rating** • Slim line DC input module • Only 0.4" (10.2 mm) wide package • Series operation compatible	• **3A output rating** • Slim line DC output module • Only 0.4" (10.2mm) wide package • Series operation compatible
a b c 1.7" x .60" x 1.25"h (43.2 x 15.2 x 31.8h) 1.48 oz. (42g)	a b c 1.7" x .60" x 1.25"h (43.2 x 15.2 x 31.8h) 1.48 oz. (42g)	a b c 1.7" x .60" x 1.25"h (43.2 x 15.2 x 31.8h) 1.48 oz. (42g)	a b c 1.7" x .60" x 1.25"h (43.2 x 15.2 x 31.8h) 1.48 oz. (42g)	a b c 1.7" x .4" x 1.0"h (43.2 x 10.2 x 25.4h) 0.9 oz. (25.5g)	a b c 1.7" x .4" x 1.0"h (43.2 x 10.2 x 25.4h) 0.9 oz. (25.5g)	a b c 1.7" x .4" x 1.0"h (43.2 x 10.2 x 25.4h) 0.9 oz. (25.5g)	a b c 1.7" x .4" x 1.0"h (43.2 x 10.2 x 25.4h) 0.9 oz. (25.5g)
1 Form A (sinking)	1 Form A	1 Form A (sinking)	1 Form A	1 Form A (sinking)	1 Form A	1 Form A (sinking)	1 Form A
Optical	Optical	Optical	Optical	Optical	Optical	Optical	Optical
18-36VAC/VDC 90-140VAC/VDC 180-280VAC/VDC	5VDC 15VDC 24VDC	3.3-32VDC 4-32VDC	5VDC 15VDC 24VDC	90-140VAC/VDC 180-280VAC/VDC	5VDC 24VDC 3-15VDC	3.3-32VDC	5VDC 3-15VDC
Random	Zero, Random	Random	Random	Random	Zero	Random	Random
.0001A	.05A	.0001A	.01A	.0001A	.05A	.0001A	.01A
0.05A	3A to 5A	0.05A	1A @ 250V 3A @ 60V	0.05A	3A to 5A	0.05A	3A @ 60V 1A @ 250V
1V	24V	1V	3V	1V	24V	1V	3V
30V	280V	30V	60V, 250V	30V	280V	30V	60V, 250V
DC	AC	DC	DC	DC	AC	DC	DC
Printed circuit	Printed circuit	Printed circuit	Printed circuit	Printed circuit	Printed circuit	Printed circuit	Printed circuit
Mounting board	Mounting board	Mounting board	Mounting board	Mounting board	Mounting board	Mounting board	Mounting board
33	33	33	33	33	33	33	33
4220	4220	4220	4220	4226	4226	4226	4226

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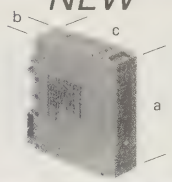
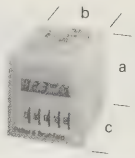
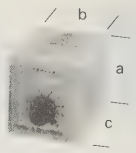
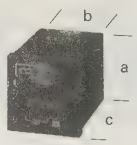
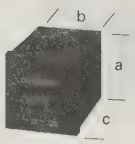
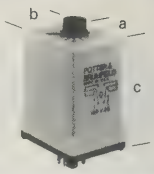
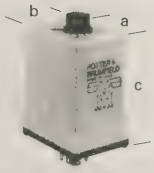
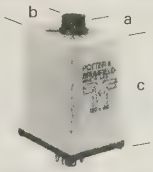
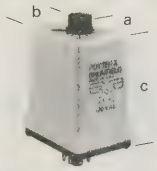
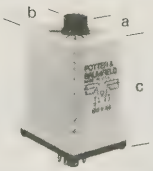
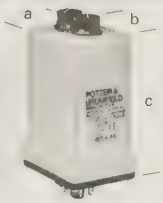
When multiple ratings are listed, no individual rating may be exceeded by the combination of others.

Time Delay Relays

	NEW			NEW	NEW	
						
Series	**CND**	**CNT**	**CNS**	**CNM5**	**CN1**	**CG**
Features	• **10A rating** • Programmable time delay relay • Universal input voltage • Fits 35 mm DIN track • UL, CSA & VDE pending	• **10A rating** • Programmable timer/ counter • Digital display • Universal input voltage • 1/16 DIN style enclosure	• **10A rating** • Programmable time delay relay • Universal input voltage • 1/16 DIN style enclosure	• **10A rating** • Economical, programmable time delay relay • Digital accuracy • LED shows status • 1/16 DIN style enclosure	• **10A rating** • Economical single function (on delay) time delay relay • Digital accuracy • LED shows status • 1/16 DIN style enclosure	• **10A rating** • Top of the line non-programmable time delay relays • Extended timing ranges
Approximate Dimensions	a b c 2.95" x .89" x 3.15"h (75 x 22.5 x 80h) 4.3 oz. (122g)	a b c 1.88" x 1.88" x 2.83"h (47.8 x 47.8 x 71.9h) 4.3 oz. (122g)	a b c 1.88" x 1.88" x 2.83"h (47.8 x 47.8 x 71.9h) 4.3 oz. (122g)	a b c 1.88" x 1.88" x 2.83"h (47.8 x 47.8 x 71.9h) 4.3 oz. (122g)	a b c 1.88" x 1.88" x 2.83"h (47.8 x 47.8 x 71.9h) 4.3 oz. (122g)	a b c 2.41" x 1.78" x 2.94"h (61.1 x 45.2 x 74.6h) 8 oz. (227g)
Contact Arrang.	1 Form C	2 Form C	2 Form C	2 Form C	2 Form C	2 Form C
Contact Rating	10A @ 28VDC or 277VAC	10A @ 30VDC or 277VAC	10A @ 30VDC or 277VAC	10A @ 30VDC or 277VAC	10A @ 30VDC or 277VAC	10A @ 240VAC
Mode of Operation	Programmable: 5 timing functions	Programmable: 10 timing functions 2 counting functions	Programmable: 8 functions (11-pin) 4 functions (8-pin)	Programmable: 5 timing functions	On Delay	Delay on Operate Delay on Release Interval On
Delay Time	0.5 sec. to 100 min.	0.1 sec. to 9,990 hr.	0.1 sec. to 100 min.	0.1 sec. to 9,990 hr.	0.1 sec. to 9,990 hr.	0.5 sec. to 50 min.
Type of Control	Rotary switches & Potentiometer Adj.	Thumbwheel switches	DIP switches & Potentiometer Adj.	Thumbwheel switches & Rotary switch	Thumbwheel switches	Potentiometer Adj.
Maximum Repeatability	±2%	±0.1% ± 0.05 sec.	±0.2%	±0.05% ± 0.04 sec.	±0.05% ± 0.04 sec.	±0.5% (AC) ±0.1% (DC)
Max. Delta Time	±10%	±0.1% ± 0.05 sec.	±10%	–	–	±5%
Tolerance	-0, +20%	±0.1% ± 0.05 sec.	Min. spec. at min.; +20%, -0 at max.	±0.05% ± 0.04 sec.	±0.05% ± 0.04 sec.	+0, -10% at min. +10%, -0 at max.
Temp. Range	-10°C to +55°C	-10°C to +55°C	-10°C to +55°C	-10°C to +55°C	-10°C to +55°C	-10°C to +55°C
Input Voltage	24-240V ±15% 50/60 Hz. AC or DC	12VDC 24-240VAC/VDC	24-240VAC/VDC	120VAC	120VAC	24VDC 120VAC
Mounting	DIN Mount	Plug-in	Plug-in	Plug-in	Plug-in	Plug-in
Page Number	34	34	34	34	34	34
Fax Document #	2630	2680	2670	2665	2610	2400

Specifications and/or agency recognitions do not necessarily apply to all models within a particular series.
When multiple ratings are listed, no individual rating may be exceeded by the combination of others.

Time Delay Relays

						
	CD	**CK**	**CH**	**CB**	**CR**	**CL/CU**
	• **10A rating** • Ideal for many demanding applications • Broad temperature range	• **10A rating** • Broad line • Wide choice of functions • Extremely versatile	• **10A rating** • Wide range of industrial applications • Dependable timing cycles	• **10A rating** • Economical for volume applications • Various timing ranges	• **10A rating** • Recycle timer allows independent control of ON and OFF delays • Time as low as 0.1 sec.	• **10A rating** • Compact package is well-suited for many OEM applications • Various mounting options
	a b c 2.41" x 1.78" x 2.94"h (61.1 x 45.2 x 74.6h) 8 oz. (227g)	a b c 2.41" x 1.78" x 2.94"h (61.1 x 45.2 x 74.6h) 6 oz. (170g)	a b c 2.41" x 1.78" x 2.94"h (61.1 x 45.2 x 74.6h) 6 oz. (170g)	a b c 2.41" x 1.78" x 2.94"h (61.1 x 45.2 x 74.6h) 6 oz. (170g)	a b c 2.41" x 1.78" x 3.56"h (61.1 x 45.2 x 90.4h) 6 oz. (170g)	a b c 1.53" x 1.41" x 1.91"h (38.9 x 35.7 x 48.4h) 3.5 oz. (99g)
	2 Form C	2 Form C	2 Form C	2 Form C	2 Form C	2 Form C
	10A @ 240VAC	10A @ 240VAC	10A @ 240VAC	10A @ 240VAC	10A @ 240VAC	10A @ 28VDC or 240VAC
	Delay on Operate Delay on Release	Delay on Operate Delay on Release Interval On Delay on Dropout	Delay on Operate Delay on Release Interval On	Delay on Operate Delay on Release Interval On	Recycle Timer	Delay on Operate
	0.1 sec. to 180 sec.	0.1 sec. to 180 sec.	1 sec. to 180 sec.	0.1 sec. to 100 min.	0.1 sec. to 180 sec.	0.1 sec. to 120 sec.
	Fixed, Potentiometer Adj., Ext. Res. Adj.	Potentiometer Adj., Ext. Res. Adj.	Fixed, Potentiometer Adj.	Potentiometer Adj.	Potentiometer Adj.	Potentiometer Adj., Ext. Res. Adj.
	±1%	±2%	±2%	±2%	±2%	±3%
	±5%	±10%	±10%	±10%	±10%	–
	±5% (fixed only)	Min. specified delay time or less at min.; -0, +20% at max.	±5% (fixed only)	Min. specified delay time or less at min.; -0, +30% at max.	Min. specified delay time or less at min.; -0, +20% at max.	Min. specified delay time or less at min.; -0, +20% at max.
	-40°C to +55°C	-10°C to +55°C	-10°C to +55°C	-10°C to +55°C	-10°C to +55°C	-10°C to +40°C
	24-48VDC 24-120VAC	12-110VDC 24-120VAC	24VDC 24-240VAC	12-24VDC 24-120VAC	24VDC 120VAC	24VDC 24-120VAC
	Plug-in	Plug-in	Plug-in	Plug-in	Plug-in	Plug-in
	35	35	35	35	36	36
	2300	2500	2401	2200	2700	2580

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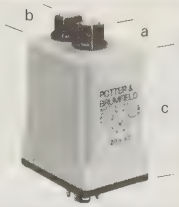
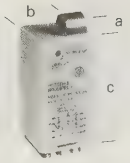
Sensors

		
Series	**CS**	**SDAS-01**
Function/Features	• **Voltage sensor** • Functions as either an overvoltage or an undervoltage sensor • Choice of fixed pick-up and knob adjustable drop-out or knob adjustable pick-up and drop-out	• **Current sensor** • AC current sensor is offered in both overcurrent and undercurrent types • Inductive coupling to power line • Potentiometer adjustable
Approximate Dimensions	a b c 2.41" x 1.78" x 2.94"h (61.1 x 42.2 x 76.6h) 8 oz. (227g)	a b c 1.53" x 1.41" x 2.72"h (38.9 x 35.7 x 70.6h) 3.2 oz. (90g)
Contact/Switch Arrangements	2 Form C	2 Form C
Contact/Switch Rating @	10A @ 28VDC or 120VAC	(2C) 2A @ 28VDC or 1A @ 120VAC
Monitor/Sense Range or Threshold	16 to 140VAC or VDC in various ranges	1.5 to 15A AC
Temp. Range	-10°C to +55°C	-25°C to +70°C
Terminals	Octal plug	Quick connect
Mounting Options	Socket	Socket
Sockets	Screw terminal	Screw terminal, Solder terminal, PC terminal, Quick connect terminal
Page Number	36	36
Fax Document #	2755	7327

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Need more information?

For more details on the products listed in this selector guide, refer to the two cells at the bottom of each column. The next to last cell lists the page number in this catalog where you may find more details about stock items in a given series. The last cell lists the fax document number for the data sheet describing the series.

Our automated fax-on-demand service, accessible from the United States and Canada by dialing **(812) 386-2561**, can provide detailed information on each series listed. Using your touch-tone telephone keypad, simply follow the prompts. When prompted, enter the fax document number from the selector guide for the series in which you are interested. The system will automatically send the data you request to your fax machine.

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W28 THERMAL CIRCUIT BREAKERS

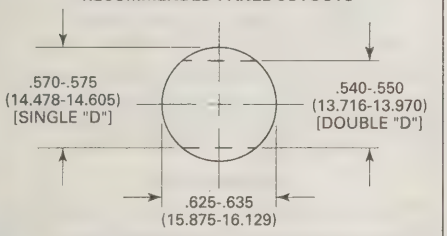
Part Number	Rating	Trip Time @ 200% of Rating
W28-XQ1A-0.25	0.25•*△§°	4.5 - 28 seconds
W28-XQ1A-0.50	0.5•*△§°	
W28-XQ1A-0.75	0.75•*△§°	
W28-XQ1A-1	1•*△§°	
W28-XQ1A-2	2•*△§°	
W28-XQ1A-3	3•*△§°	2.2 - 15 seconds
W28-XQ1A-4	4•*△§°	
W28-XQ1A-5	5•*△§°	
W28-XQ1A-6	6•*△§°	
W28-XQ1A-7	7•*△§°	
W28-XQ1A-8	8•*△§°	
W28-XQ1A-10	10•*△§°	
W28-XQ1A-12	12•*△§°	
W28-XQ1A-15	15•*△§°	
W28-XT1A-10	10•*△§°	2.2 - 15 seconds
W28-XT1A-12	12•*△§°	
W28-SQ11A-3	3•*	2.2 - 15 seconds
W28-SQ11A-5	5•*	
W28-SQ11A-8	8•*	
W28-SQ11A-10	10•*	
W28-SQ11A-12	12•*	
W28-SQ11A-15	15•*	

W28-XQ1A-10 "Q" denotes model for .032" - .062"(.813mm-1.574mm) thick panel.
W28-XT1A-10 "T" denotes model for .075" - .105"(1.905mm-2.667mm) thick panel.
W28-XQ1A-10 "X" denotes push-to-reset only model.
W28-SQ11A-10 "S" denotes switchable model.

TIME VS. CURRENT @ 25°C

0.25 - 2 Amp Models		3-15 Amp Models	
Overload	Trip Time	Overload	Trip Time
100%	No Trip	100%	No Trip
175%	Trip in 1 hour	135%	Trip in 1 hour
200%	4.5 - 28.0 seconds	200%	2.2 - 15.0 seconds
400%	1.0 - 6.5 seconds	400%	0.55 - 1.8 seconds
600%	0.4 - 4.0 seconds	600%	0.27 - 0.7 seconds
		800%	0.17 - 0.45 seconds
		1000%	0.12 - 0.3 seconds

RECOMMENDED PANEL CUTOUTS



Recommended panel thickness .032 - .062 (0.81 - 1.57).

W58 THERMAL CIRCUIT BREAKERS

Part Number	Rating	Trip Time @ 200% of Rating
.250 Q.C. Term. Types (Hex Nut & Knurled Nut Mtg.)		
W58-XB1A4A-1	1•*	10 - 45 seconds
W58-XB1A4A-2	2•*	
W58-XB1A4A-3	3•*	
W58-XB1A4A-4	4•*	
W58-XB1A4A-5	5•*	6 - 30 seconds
W58-XB1A4A-6	6•*	
W58-XB1A4A-7	7•*	
W58-XB1A4A-8	8•*	
W58-XB1A4A-10	10•*	
W58-XB1A4A-12	12•*	
W58-XB1A4A-15	15•*	
W58-XB1A4A-20	20•*	
W58-XB1A4A-25	25•*	
W58-XB1A4A-30	30	
W58-XB1A4A-35	35	
Screw Term. Types (Lockwasher & Knurled Nut Mtg.)		
W58-XC4C12A-1	1•*	10 - 45 seconds
W58-XC4C12A-2	2•*	
W58-XC4C12A-3	3•*	
W58-XC4C12A-5	5•*	6 - 30 seconds
W58-XC4C12A-7	7•*	
W58-XC4C12A-10	10•*	
W58-XC4C12A-15	15•*	
W58-XC4C12A-20	20•*	
W58-XC4C12A-25	25•*	
W58-XC4C12A-30	30	
W58-XC4C12A-35	35	

Q. C. term. types have red rating on button and mount via a silver colored 7/16-28 by 0.5 (12.7) long threaded bushing.

Screw term. types have black rating on button and mount via a black 15/32-28 by 0.3 (7.62) long threaded bushing.

TIME VS. CURRENT @ 25°C

1 - 4 Amp Models		5 - 35 Amp Models	
Overload	Trip Time	Overload	Trip Time
100%	No Trip	100%	No Trip
145%	Trip in 1 hour	145%	Trip in 1 hour
200%	10.0 - 45.0 seconds	200%	6.0 - 30.0 seconds
400%	3.0 - 14.0 seconds	400%	1.6 - 4.5 seconds
600%	1.4 - 7.0 seconds	600%	0.6 - 1.7 seconds
800%	0.75 - 4.3 seconds	800%	0.25 - 0.90 seconds
1000%	0.5 - 3.4 seconds	1000%	0.15 - 0.65 seconds

W33 THERMAL CIRCUIT BREAKERS

Part Number	Rating	Rocker Color	Light
Type w/pole 1 switch only, pole 2 series trip sensing			
W33-S1N1Q-5	5•*	Black	None
W33-S1N1Q-15	15•*		
W33-S1N1Q-20	20•*		
W33-S4B1Q-10	10•*	Amber	120VAC
W33-S4B1Q-15	15•*		
Type w/poles 1 & 2 series trip sensing			
W33-T2N1Q-20	20•*	White	None
W33-T4B1Q-5	5•*	Amber	120VAC
W33-T4B1Q-10	10•*		
W33-T4B1Q-15	15•*		

W33 breakers snap into a .875 x 1.75 (22.22 x 44.45) opening in a panel from .032 - .250 (.813 - 6.35) thick.

TIME VS. CURRENT @ 25°C

Overload	Trip Time
100%	No Trip
145%	Trip in 1 hour
200%	10.0 - 45.0 seconds
400%	3.0 - 14.0 seconds
600%	1.4 - 7.0 seconds
800%	0.75 - 4.3 seconds
1000%	0.5 - 3.4 seconds

W23 THERMAL CIRCUIT BREAKERS

Part Number	Rating	Trip Time @ 200% of Rating
W23-X1A1G-1	1•*	11 - 30 seconds
W23-X1A1G-2	2•*	
W23-X1A1G-3	3•*	
W23-X1A1G-5	5•*	6 - 22 seconds
W23-X1A1G-7.5	7.5•*	
W23-X1A1G-10	10•*	
W23-X1A1G-15	15•*	
W23-X1A1G-20	20•*	
W23-X1A1G-25	25•*	
W23-X1A1G-30	30•*	
W23-X1A1G-35	35•*	
W23-X1A1G-40	40•*	
W23-X1A1G-50	50•*	

W23 breakers mount via a silver colored 3/8-24 by 0.5 (12.7) long threaded bushing with two hex nuts and a lockwasher.

TIME VS. CURRENT @ 25°C

1 - 4 Amp Models		5 - 35 Amp Models	
Overload	Trip Time	Overload	Trip Time
100%	No Trip	100%	No Trip
135%	Trip in 1 hour	135%	Trip in 1 hour
200%	11.0 - 30.0 seconds	200%	6.0 - 22.0 seconds
400%	2.0 - 8.0 seconds	400%	1.0 - 3.0 seconds
600%	1.0 - 5.5 seconds	600%	0.45 - 1.5 seconds
800%	0.6 - 4.0 seconds	800%	0.3 - 0.8 seconds
1000%	0.4 - 2.5 seconds	1000%	0.25 - 0.6 seconds

W31 THERMAL CIRCUIT BREAKERS

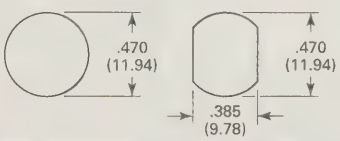
Part Number	Rating	Trip Time @ 200% of Rating
W31-X2M1G-1	1•*	11 - 30 seconds
W31-X2M1G-2	2•*	
W31-X2M1G-3	3•*	
W31-X2M1G-5	5•*	6 - 22 seconds
W31-X2M1G-7.5	7.5•*	
W31-X2M1G-10	10•*	
W31-X2M1G-15	15•*	
W31-X2M1G-20	20•*	
W31-X2M1G-25	25•*	
W31-X2M1G-30	30•*	
W31-X2M1G-35	35•*	
W31-X2M1G-40	40•*	
W31-X2M1G-50	50•*	

W31 breakers mount via a silver colored 15/32-32 by 0.335 (8.51) long threaded bushing with two hex nuts and a lockwasher.

TIME VS. CURRENT @ 25°C

Same as W23. See chart above in W23 section.

RECOMMENDED PANEL CUTOUTS



W6 MAGNETIC CIRCUIT BREAKERS

No. of Poles	Part Number	Voltage	Trip Curve	Rating (Amps)
Single Pole	W67-X2Q10-3	AC	0	3•*△
	W67-X2Q10-5			5•*△
	W67-X2Q12-2	AC	2	2•*△
	W67-X2Q12-3			3•*△
	W67-X2Q12-5			5•*△
	W67-X2Q12-7			7•*△
	W67-X2Q12-10			10•*△
	W67-X2Q12-15			15•*△
	W67-X2Q12-20			20•*△
	W67-X2Q12-30			30•*△

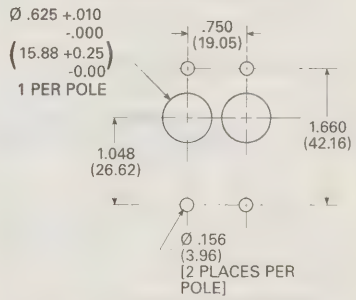
W6 Data Continues on the Next Column.

W6 MAGNETIC CIRCUIT BREAKERS

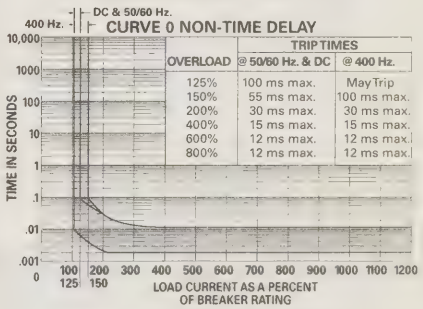
No. of Poles	Part Number	Voltage	Trip Curve	Rating (Amps)
Single Pole	W67-X2Q13-1	AC	3	1•*△
	W67-X2Q13-2			2•*△
	W67-X2Q13-3			3•*△
	W67-X2Q13-10			10•*△
	W67-X2Q13-15			15•*△
	W67-X2Q13-20			20•*△
	W67-X2Q13-25			25•*△
	W67-X2Q13-30			30•*△
	W67-X2Q110-15	AC	10	15•*△
	W67-X2Q110-20			20•*△
	W67-X2Q50-5	DC	0	5•*△
	W67-X2Q50-10			10•*△
	W67-X2Q52-5	DC	2	5•*△
	W67-X2Q52-10			10•*△
	W67-X2Q52-15			15•*△
	W67-X2Q52-20			20•*△
	W67-X2Q52-30			30•*△
Single Pole W/Aux. Sw.	W67-A2Q12-5	AC	2	5•*△
	W67-A2Q12-10			10•*△
Two Pole	W68-X2Q10-10	AC	0	10•*△
	W68-X2Q10-30			30•*△
	W68-X2Q12-3	AC	2	3•*△
	W68-X2Q12-5			5•*△
	W68-X2Q12-7			7•*△
	W68-X2Q12-10			10•*△
	W68-X2Q12-15			15•*△
	W68-X2Q12-20			20•*△
	W68-X2Q12-25			25•*△
	W68-X2Q12-30			30•*△
	W68-X2Q13-15	AC	3	15•*△
	W68-X2Q110-10	AC	10	10•*△
	W68-X2Q110-20			20•*△
Three Pole	W69-X2Q12-5	AC	2	5•*△
	W69-X2Q12-10			10•*△
	W69-X2Q12-15			15•*△
	W69-X2Q12-20			20•*△
	W69-X2Q12-25			25•*△
	W69-X2Q12-30			30•*△
	W69-X2Q110-20	AC	10	20•*△
	W69-X2Q110-30			30•*△

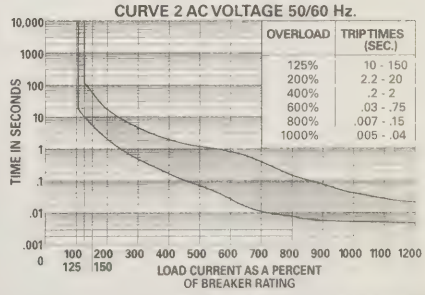
W67**X**2Q12-5 "X" denotes series trip.
W67**A**2Q12-5 "A" denotes series trip with .093 (2.36) Q.C. terminated auxiliary switch.
W67**B**2Q12-5 "B" denotes series trip with .110 (2.79) Q.C. terminated auxiliary switch.
W67X2**Q**12-5 "Q" denotes .250 (6.35) Q.C. main terminals.
W67X2**T**12-5 "T" denotes #10-32 screw main terminals.

PANEL MOUNTING CUTOUT



TIME VS. CURRENT TRIP CURVES


DC & 50/60 Hz.
400 Hz.
CURVE 0 NON-TIME DELAY
TRIP TIMES
OVERLOAD | @ 50/60 Hz. & DC | @ 400 Hz.
125% | 100 ms max. | May Trip
150% | 55 ms max. | 100 ms max.
200% | 30 ms max. | 30 ms max.
400% | 15 ms max. | 15 ms max.
600% | 12 ms max. | 12 ms max.
800% | 12 ms max. | 12 ms max.
TIME IN SECONDS
10,000
1000
100
10
1
.1
.01
.001
0
100 125 200 150 300 400 500 600 700 800 900 1000 1100 1200
LOAD CURRENT AS A PERCENT OF BREAKER RATING



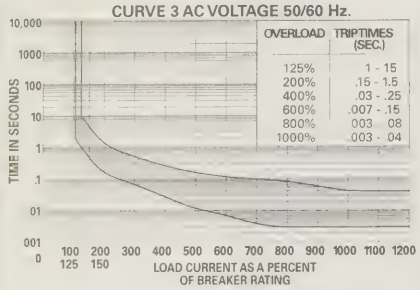
W6 Data Continues on the Next Page.

• Denotes UL △ Denotes VDE
* Denotes CSA ° Denotes DEMKO § Denotes SEV

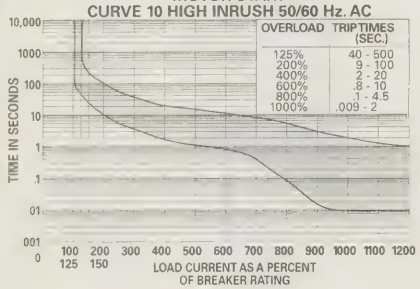
W6 MAGNETIC CIRCUIT BREAKERS (Cont'd)

TIME VS. CURRENT TRIP CURVES

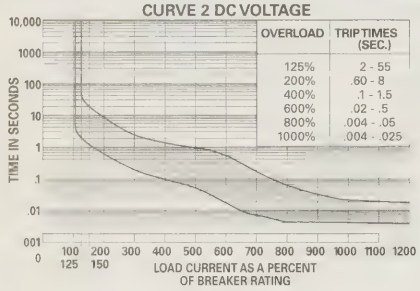
CURVE 3 AC VOLTAGE 50/60 Hz.


OVERLOAD | TRIP TIMES (SEC.)
125% | 1 - 15
200% | .15 - 1.5
400% | .03 - .25
600% | .007 - .15
800% | .003 - .08
1000% | .003 - .04
TIME IN SECONDS
LOAD CURRENT AS A PERCENT OF BREAKER RATING

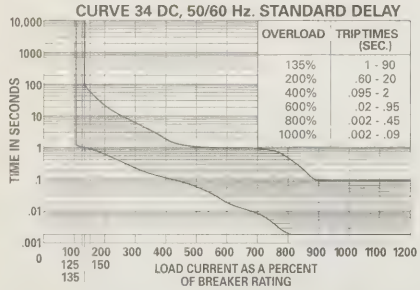
MOTOR START
CURVE 10 HIGH INRUSH 50/60 Hz. AC


OVERLOAD | TRIP TIMES (SEC.)
125% | 40 - 500
200% | 9 - 100
400% | 2 - 20
600% | .8 - 10
800% | .1 - 4.5
1000% | .009 - 2
TIME IN SECONDS
LOAD CURRENT AS A PERCENT OF BREAKER RATING

CURVE 2 DC VOLTAGE


OVERLOAD | TRIP TIMES (SEC.)
125% | 2 - 55
200% | .60 - 8
400% | .1 - 1.5
600% | .02 - .5
800% | .004 - .05
1000% | .004 - .025
TIME IN SECONDS
LOAD CURRENT AS A PERCENT OF BREAKER RATING

CURVE 34 DC, 50/60 Hz. STANDARD DELAY


OVERLOAD | TRIP TIMES (SEC.)
135% | 1 - 90
200% | .60 - 20
400% | .095 - 2
600% | .02 - .95
800% | .002 - .45
1000% | .002 - .09
TIME IN SECONDS
LOAD CURRENT AS A PERCENT OF BREAKER RATING

W9 MAGNETIC CIRCUIT BREAKERS

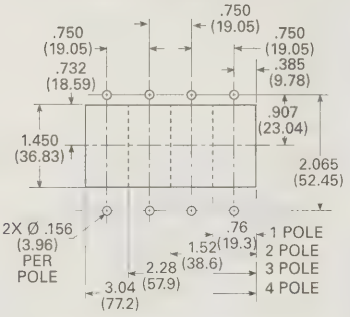
No. of Poles	Part Number	Voltage	Trip Curve	Rating (Amps)
Single Pole	W91-X112-1	AC	2	1•*Δ
	W91-X112-2			2•*Δ
	W91-X112-3			3•*Δ
	W91-X112-5			5•*Δ
	W91-X112-7			7•*Δ
	W91-X112-10			10•*Δ
	W91-X112-15			15•*Δ
	W91-X112-20			20•*Δ
	W91-X112-40			40•*Δ
	W91-X112-50			50•*Δ
	W91-X112-5	AC	3	5•*Δ
	W91-X113-10			10•*Δ
	W91-X113-15			15•*Δ
	W91-X1110-20	AC	10	20•*Δ
	W91-X150-5	DC	0	5•*Δ
	W91-X152-10	DC	2	10•*Δ
	W91-X152-15			15•*Δ

W9 Data Continues on the Next Column.

W9 MAGNETIC CIRCUIT BREAKERS

No. of Poles	Part Number	Voltage	Trip Curve	Rating (Amps)
Single Pole	W91-X152-20	DC	2	20•*Δ
	W91-X152-30			30•*Δ
	W91-X152-40			40•*Δ
	W91-X152-50			50•*Δ
Two Pole	W92-X112-1	AC	2	1•*Δ
	W92-X112-2			2•*Δ
	W92-X112-3			3•*Δ
	W92-X112-5			5•*Δ
	W92-X112-7			7•*Δ
	W92-X112-10			10•*Δ
	W92-X112-15			15•*Δ
	W92-X112-20			20•*Δ
	W92-X112-25			25•*Δ
	W92-X112-30			30•*Δ
	W92-X112-40			40•*Δ
	W92-X112-50			50•*Δ
	W92-X113-15	AC	3	15•*Δ
	W92-X113-20			20•*Δ
	W92-X1110-20	AC	10	20•*Δ
	W92-X1110-30			30•*Δ
Three Pole	W93-X112-5	AC	2	5•*Δ
	W93-X112-10			10•*Δ
	W93-X112-15			15•*Δ
	W93-X112-20			20•*Δ
	W93-X112-25			25•*Δ
	W93-X112-30			30•*Δ
	W93-X112-40			40•*Δ
	W93-X112-50			50•*Δ
	W93-X1110-20	AC	10	20•*Δ
	W93-X1110-30			30•*Δ

PANEL MOUNTING CUTOUT



TIME VS. CURRENT TRIP CURVES
Curves are same as W6 series. See W6 data.

JWD/JWS REED RELAYS

JWD/S Part Number	Coil: Nom. Input (VDC)	Coil: Res. in Ohms	Coil: Nom. Power in mW	Contacts: Arrang.	Contacts: Rating (W)	Wiring Dia. No.
JWD (DIP) Relays without Coil Suppression Diode						
JWD-107-1	5/6	500	50/72	SPST-NO	10•*	1
JWD-107-3	12	500	288			1
JWD-171-5	24	2,150	262			2
JWD-171-12	5/6	500	50/72	SPST-NC	10•*	4
JWD-171-14	12	1,200	120			4
JWD-172-1	5/6	200	125/180	SPDT	3•*	5
JWD-172-3	12	500	288			5
JWD-172-4	24	2,150	262			5
JWD-171-23	12	500	288	DPST-NO	10•*	3
JWD (DIP) Relays with Coil Suppression Diode						
JWD-107-5	5/6	500	50/72	SPST-NO	10•*	1
JWD-107-7	12	500	288			1
JWD-171-10	24	2,150	262			2
JWD-171-17	5/6	500	50/72	SPST-NC	10•*	4
JWD-171-19	12	1,200	120			4
JWD-171-20	24	2,150	262			4
JWD-172-5	5/6	200	125/180	SPDT	3•*	5
JWD-172-7	12	500	288			5
JWD-172-161	12	500	288			6
JWD-172-8	24	2,150	262			5
JWD-172-162	24	2,150	262			6
JWD-118-8	24	1,200	480			5
JWD-171-25	5/6	200	125/180	DPST-NO	10•*	3
JWD-171-27	12	500	288			3
JWD-171-28	24	2,150	262			3
JWS (SIP) Relays without Coil Suppression Diode						
JWS-117-1	5	380	66	SPST-NO	10•*	7
JWS-117-3	12	530	272			7
JWS-117-5	24	2,000	288			7

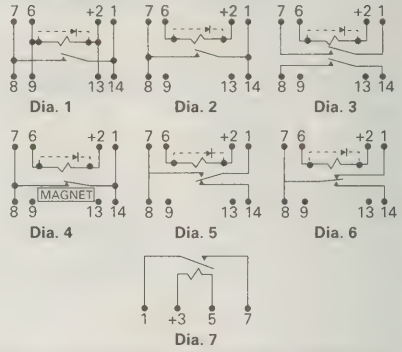
P.C. BOARD LAYOUTS

JWD relays have DIP terminals arranged in a 0.1 (2.54) grid x 0.3 (7.62) rows. Terminals are .012 x .020 (.3 x .51). JWS relays have SIP terminals arranged 0.2 (5.08) apart. Terminals are .010 x .020 (.25 x .51).

JWD/JWS Data Continues on the Next Column.

JWD/JWS REED RELAYS

WIRING DIAGRAMS (TOP VIEWS)



T81 PRINTED CIRCUIT BOARD RELAYS

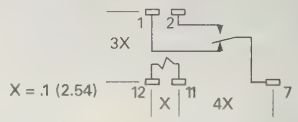
T81 Part Number	Coil: Input	Coil: Res. in Ohms	Coil: Nom. Power in mW	Contacts: Arrang.	Contacts: Amp Rating
T81N5D212-05	5	56	450	SPDT	1
-12	12	320			
-24	24	1,280			
T81H5D212-05	5	120	200	SPDT	1
-06	6	180			
-12	12	700			
-24	24	2,800			
T81N5D312-05	5	56	450	SPDT	1•*
-12	12	320			
-24	24	1,280			
T81H5D312-05	5	120	200	SPDT	1•*
-06	6	180			
-12	12	700			
-24	24	2,800			

T81N5D212-05 "2" denotes standard dielectric type (500V).
T81N5D312-05 "3" denotes high dielectric type (1,000V).
T81N5D212-05 "N" denotes standard coil type.
T81H5D212-05 "H" denotes sensitive coil type.

P.C. BOARD LAYOUT

DIP terminals are arranged on a 0.1 x 0.1 (2.54 x 2.54) grid.
Suggested hole diameter is .041 ± .006 (1.04 ± .13).

WIRING DIAGRAM (BOTTOM VIEW)



T85 PRINTED CIRCUIT BOARD RELAYS

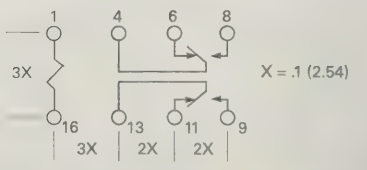
T85 Part Number	Coil: Input	Coil: Res. in Ohms	Coil: Nom. Power in mW	Contacts: Arrang.	Contacts: Amp Rating
T85N11D114-05	5	167	150	DPDT	1.25•*
-06	6	240	150		
-09	9	540	150		
-12	12	960	150		
-24	24	2,880	200		
-48	48	7,680	300		
T85N11D115-05	5	45	560	DPDT	2•*
-06	6	66	550		
-09	9	140	580		
-12	12	280	510		
-24	24	1,070	540		
-48	48	4,000	580		

T85N11D114-05 "4" denotes contacts rated 1.25A.
T85N11D115-05 "5" denotes contacts rated 2A.

P.C. BOARD LAYOUT

DIP terminals are arranged on a 0.1 x 0.1 (2.54 x 2.54) grid (see below). Suggested hole diameter is .032 (0.8).

WIRING DIAGRAM (BOTTOM VIEW)



• Denotes UL
* Denotes CSA Δ Denotes VDE

T83 PRINTED CIRCUIT BOARD RELAYS

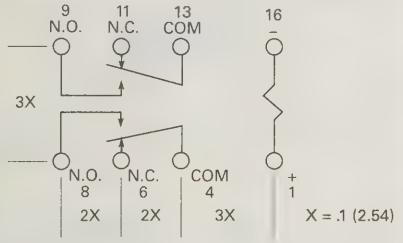
T83 Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power in mW	Contacts Arrang.	Contacts Amp Rating
Non-Latching Types					
T83S11D112-05	5	165	150	DPDT	2•*
-12	12	960			
-24	24	3,840			
T83S11D212-05	5	125	200	DPDT	2•*
-12	12	720			
-24	24	2,880			
-48	48	11,520			
T83S11D312-05	5	95	260	DPDT	2•*
-12	12	600	240		
-24	24	2,210	260		
-48	48	6,330	360		
T83S11D412-05	5	62.5	400	DPDT	2•*
-12	12	360			
-24	24	1,440			
Single Coil Latching Types					
T83S11D122-05	5	330	75	DPDT	2•*
T83S11D222-05	5	250	100	DPDT	2•*
T83S11D422-12	12	720	200	DPDT	2•*
Dual Coil Latching Types					
T83S11D132-05	5	167	150	DPDT	2•*
-12	12	960			
-24	24	3,840			
T83S11D232-05	5	125	200	DPDT	2•*
-12	12	720	200		
-24	24	2,040	280		
T83S11D432-12	12	360	400	DPDT	2•*
-24	24	1,440			

P.C. BOARD LAYOUT

DIP terminals are arranged on a 0.1 x 0.1 (2.54 x 2.54) grid (see below). Suggested hole diameter is .039 (0.99).

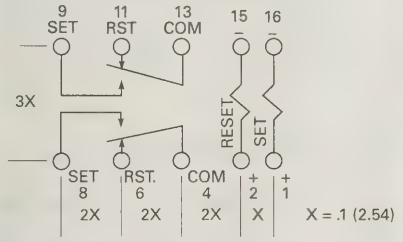
WIRING DIAGRAMS (BOTTOM VIEWS)

Single Coil Non-Latching & Single Coil Latching



1. For non-latching versions, coil polarity must be observed.
2. For single coil latching versions, polarity shown results in "set" condition. Reverse polarity results in "reset" condition.
3. Diagram indicates de-energized position for non-latching and "reset" position for single coil latch.

Dual Coil Latching



1. Diagram indicates relay in the "reset" position, with terminals 2 and 15 most recently energized. Energizing terminals 1 and 16 will transfer the contacts.

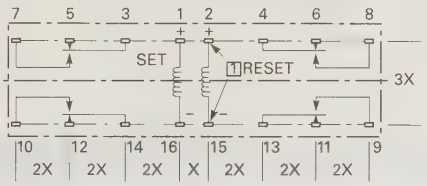
T84 PRINTED CIRCUIT BOARD RELAYS

T84 Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power in mW	Contacts Arrang.	Contacts Amp Rating
Non-Latching Types					
T84S17D214-05	5	125	200	4PDT	1•*
-12	12	720			
-24	24	2,880			
-48	48	11,520			
T84S17D414-05	5	62.5	400	4PDT	1•*
-12	12	360			
-24	24	1,440			
-48	48	5,760			
Single Coil Latching Types					
T84S17D224-05	5	278	90	4PDT	1•*
Dual Coil Latching Types					
T84S17D234-03	3	50	180	4PDT	1•*
-05	5	139			
-12	12	800			
-24	24	3,200			
T84S17D434-05	5	69	360	4PDT	1•*
-12	12	400			

P.C. BOARD LAYOUT

DIP terminals are arranged on a 0.1 x 0.1 (2.54 x 2.54) grid (see below). Suggested hole diameter is .032 (0.8).

WIRING DIAGRAM (BOTTOM VIEW)



1. Second set of coil terminal is for dual coil latching version.
2. Schematic shows de-energized position for non-latching version; "reset" position for latching version.
3. Coil polarity shown must be observed for non-latching versions.
4. For single coil latching, polarity shown results in "set." Reverse polarity results in "reset."

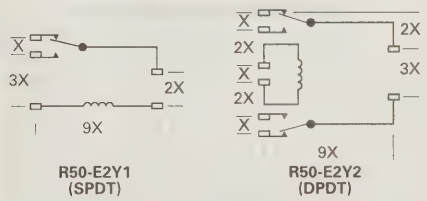
R50 PRINTED CIRCUIT BOARD RELAYS

R50 Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power in W	Contacts Arrang.	Contacts Amp Rating
R50-E2Y1 -5	5	33	.750	SPDT	2•*
-6	6	48			
-12	12	192			
-24	24	768			
-48	48	3,060			
R50-E2X1 -5	5	26	1.0	SPDT	5•*
-12	12	125			
-24	24	440			
R50-E2Y2 -5	5	28	.900	DPDT	2•*
-12	12	160			
-24	24	640			

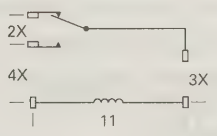
P.C. BOARD LAYOUT

DIP terminals are arranged on a 0.1 x 0.1 (2.54 x 2.54) grid (see below). Suggested hole diameter is .06 ± .002 (1.52 ± .051).

WIRING DIAGRAMS (BOTTOM VIEW)



R50-E2Y1 (SPDT) **R50-E2Y2 (DPDT)**



X = .1 (2.54)

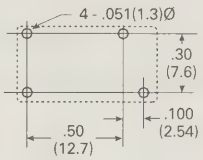
R50-E2X1 (SPDT)

T77 PRINTED CIRCUIT BOARD RELAYS

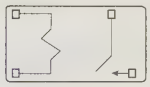
T77 Part Number	Coil Input (VDC)	Coil Res. in Ohms	Coil Nom. Power in mW	Contacts Arrang.	Contacts Amp Rating
T77V1D3 -05	5	125	200	SPST-NO	3•*
-12	12	720			
-24	24	2,800			
T77V1D10 -05	5	55	450	SPST-NO	10•*
-12	12	320			
-24	24	1,280			
T77S1D3 -05	5	125	200	SPST-NO	3•*
-12	12	720			
-24	24	2,800			
T77S1D10 -05	5	55	450	SPST-NO	10•*
-12	12	320			
-24	24	1,280			

T77**V**1D3-5 "V" denotes vented relay.
T77**S**1D3-5 "S" denotes tape sealed relay.

P.C. BOARD LAYOUT (BOTTOM VIEWS)



WIRING DIAGRAM (BOTTOM VIEW)



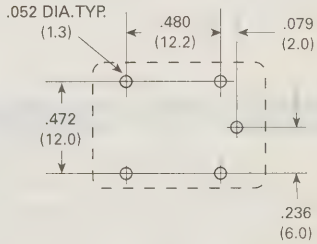
(SPST)

T72 PRINTED CIRCUIT BOARD RELAYS

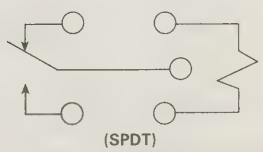
T72 Part Number	Coil Input (VDC)	Coil Res. in Ohms	Coil Nom. Power in mW	Contacts Arrang.	Contacts Amp Rating
T72L5D164 -05	5	70	360	SPDT	10•*
-12	12	400			
-24	24	1,600			

T72**L**5D164-5 "L" denotes immersion cleanable relay with UL240V spacing.

P.C. BOARD LAYOUT



WIRING DIAGRAM (BOTTOM VIEW)



(SPDT)

• Denotes UL
* Denotes CSA

T73 PRINTED CIRCUIT BOARD RELAYS

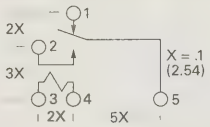
T73 Part Number	Coil Input (VDC)	Coil Res. in Ohms	Coil Nom. Power in mW	Contacts Arrang.	Contacts Amp Rating
T73L1D15 -05	5	56	450	SPST-NO	10•*
-12	12	320	450		
T73S5D21 -12	12	440	330	SPDT	1•*
T73S5D11 -12	12	320	450	SPDT	1•*
T73S5D24 -12	12	440	330	STDT	5•*
-12B	12	440			
-24	24	1,780			
-24B	24	1,780			
T73S5D14 -05	5	56	450	SPDT	5•*
-06	6	80	450		
-12	12	320	450		
-24	24	1,280	450		
-48	48	3,800	600		

T73L1D15-05 "L" denotes tape sealed enclosure.
T73**S**1D15-05 "S" denotes permanently sealed enclosure.
T73S5D24-12**B** "B" denotes Class B (130°C) coil.

P.C. BOARD LAYOUT (BOTTOM VIEW)

Terminals are arranged on a 0.1 x 0.1 (2.54 x 2.54) grid (see below). Suggested hole diameter is .039-.047 (1.0-1.2).

WIRING DIAGRAM (BOTTOM VIEW)



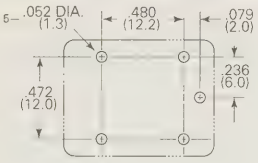
Only necessary terminals are present on single throw models.

T70 PRINTED CIRCUIT BOARD RELAYS

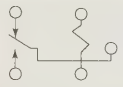
T70 Part Number	Coil Input (VDC)	Coil Res. in Ohms	Coil Nom. Power in mW	Contacts Arrang.	Contacts Amp Rating
T70L5D131 -05	5	70	360	SPDT	10•*
-06	6	100			
-09	9	225			
-12	12	400			
-24	24	1,600			
-48	48	6,400			
T70L5D164 -05	5	70	360	SPDT	10•*
-09	9	225			
-12	12	400			
-24	24	1,600			
-48	48	6,400			

T70L5D1**31**-12 "31" denotes Au plated Ag contacts rated for tungsten loads of 3A @ 120VAC.
T70L5D1**64**-12 "64" denotes AgCdO contacts rated for tungsten loads of 5A @ 120VAC.

P.C. BOARD LAYOUT (BOTTOM VIEW)



WIRING DIAGRAM (BOTTOM VIEW)



T7C PRINTED CIRCUIT BOARD RELAYS

T7C Part Number	Coil Input (VDC)	Coil Res. in Ohms	Coil Nom. Power in mW	Contacts Arrang.	Contacts Amp Rating
T7CV5D -06	6	100	360	SPDT	12•*
-12	12	400			
-24	24	1,600			
T7CS5D -06	6	100	360	SPDT	12•*
-12	12	400			
-24	24	1,600			

T7C**V**5D-06 "V" denotes vented (Flux-Tight)* relay.
T7C**S**5D-05 "S" denotes sealed relay with knock-off nib.
* Not suitable for immersion cleaning processes.

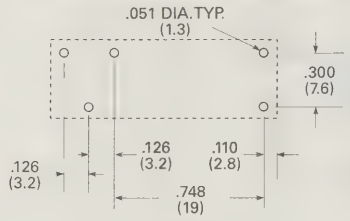
P.C. BOARD LAYOUT
Same as T70 relay, except holes for T7C coil terminals are .039(1.0).

WIRING DIAGRAM (BOTTOM VIEW)
Same as T70 relay. See previous column.

T75 PRINTED CIRCUIT BOARD RELAYS

T75 Part Number	Coil Input (VDC)	Coil Res. in Ohms	Coil Nom. Power in mW	Contacts Arrang.	Contacts Amp Rating
T75S5D112 -05	5	118	230	SPDT	10•*§ (8Δ)
-12	12	650			
-24	24	2,270			
-48	48	8,790			

P.C. BOARD LAYOUT (BOTTOM VIEW)



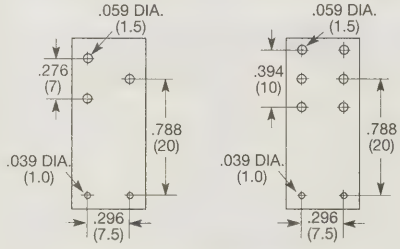
WIRING DIAGRAM (BOTTOM VIEW)

GLR PRINTED CIRCUIT BOARD RELAYS

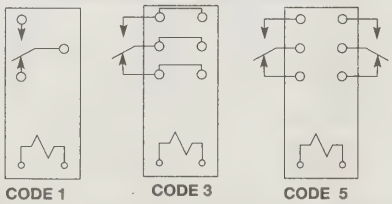
GLR Part Number	Coil Input (VDC)	Coil Res. in Ohms	Coil Nom. Power in mW	Contacts Arrang.	Contacts Amp Rating
GLRV-1D11-12	12	275	525	SPDT-NO	10•*
-24	24	1,100			
GLRS-1D11-05	5	47	525	SPST-NO	10•*
-12	12	275			
-24	24	1,100			
GLRV-5D11-12	12	275	525	SPDT	10•*
-24	24	1,100			
GLRS-5D11-05	5	47	525	SPDT	10•*
-12	12	275			
-24	24	1,100			
-48	48	4,400			

GLRV-1D11-05 "V" denotes vented relay.
GLRS-1D11-05 "S" denotes tape sealed relay.

P.C. BOARD LAYOUTS (BOTTOM VIEWS)



WIRING DIAGRAMS (BOTTOM VIEWS)



Only necessary terminals are present on single throw models

SOCKETS AND ACCESSORIES

SCREW TERMINAL AND PC BOARD SOCKETS
See RKS sockets on the next page.

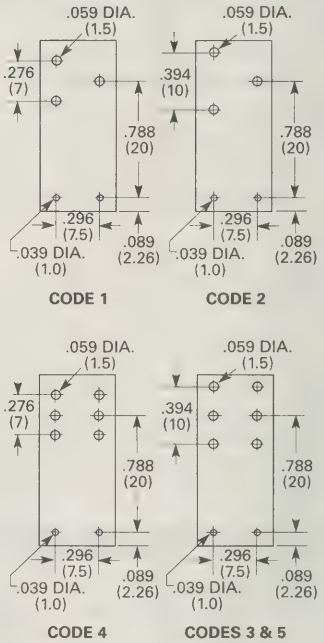
HOLD-DOWN HARDWARE
Snap-in hold-down spring for use with all GLR relay and screw terminal or PC board sockets listed on the next page. **20C418.**

RKS PRINTED CIRCUIT BOARD RELAYS

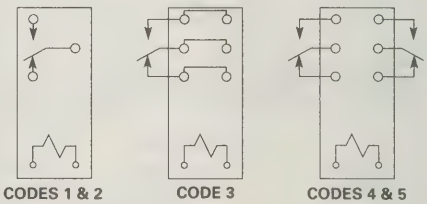
RKS Part Number	Coil Input (VDC)	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang. Code	Contacts Amp Rating
RKS-1DG -12	12	275	520mW	SPST-NO Code 1	10•*Δ
-24	24	1,100			
RKS-1DW -12	12	275	520mW	SPST-NO Code 3	20•*Δ
-18	18	620			
-24	24	1,100			
RKS-5DG -05	5	47	520mW	SPDT Code 1	10•*Δ
-12	12	275			
-24	24	1,100			
-48	48	4,400			
RKS-5DW -05	5	47	520mW	SPDT Code 3	20•*Δ
-12	12	275			
-24	24	1,100			
-48	48	4,400			
RKS-5DX -12	12	275	520mW	SPDT Code 2	10•*Δ
RKS-7DX -24	24	1,100	520mW	DPST-NO Code 5	10•*Δ
RKS-11DG-12	12	275	520mW	DPDT Code 4	10•*Δ
-24	24	1,100			
RKS-11DX-05	5	47	520mW	DPDT Code 5	10•*Δ
-12	12	275			
-18	18	620			
-24	24	1,100			
-48	48	4,400			

RKS-1D**G**-05 "G" denotes term. code 1 for single pole models, code 4 for double pole models.
RKS-1D**W**-12 "W" denotes term. code 3.
RKS-5D**X**-24 "X" denotes term. code 2 for single pole models, code 5 for double pole models.

P.C. BOARD LAYOUTS (BOTTOM VIEWS)



WIRING DIAGRAMS (BOTTOM VIEWS)



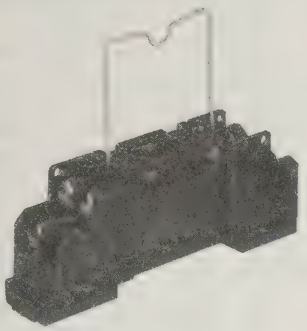
Only necessary terminals are present on single throw models.

• Denotes UL § Denotes SEV
* Denotes CSA Δ Denotes VDE

RKS PRINTED CIRCUIT BOARD RELAYS (Cont'd.)

OPTIONAL SOCKETS AND ACCESSORIES

SCREW TERMINAL SOCKET



Din rail mount, screw terminal socket to snap on to track w/o tools. rated 10A @ 250 VAC.
Measures 2.76(70) x .63(16)x 1.06(27h).

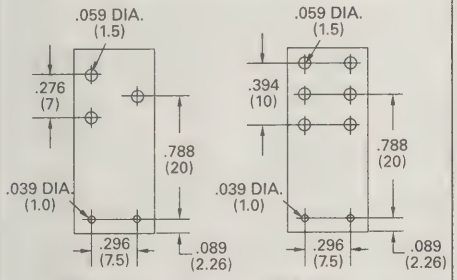
Part Number	No. of Poles	GLR/RKS Dia. Code	RKA Dia. Code	Terminal Type
27E1038•*Δ	1	1	1	Screw Terminal
27E1039•*Δ	1 & 2	3 & 5	2	Screw Terminal

PC BOARD SOCKET

P.C. Board socket rated 10A @ 250 VAC.
Measures 1.18(30) x .51(13) x .39(10h).

Part Number	No. of Poles	GLR/RKS Dia. Code	RKA Dia. Code	Terminal Type
27E936•*Δ	1	1	1	Printed Circuit
27E937•*Δ	1 & 2	3 & 5	2	Printed Circuit

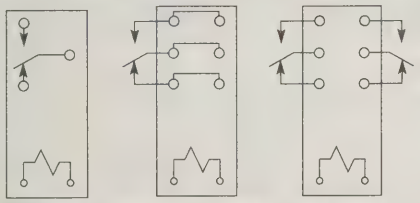
P.C. BOARD LAYOUTS (BOTTOM VIEWS)



RKA Code 1
GLR/RKS Code 1

RKA Code 2
GLR/RKS Code 3 & 5

WIRING DIAGRAM (BOTTOM VIEW)



RKA Code 1
GLR/RKS Code 1

GLR/RKS Code 3

RKA Code 2
GLR/RKS Code 5

HOLD-DOWN HARDWARE

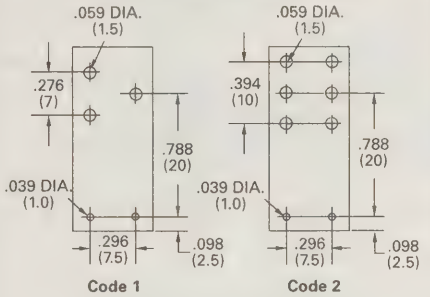
Snap-in hold-down spring for use with RK relays and all RK sockets listed above. **20C418**

RKA PRINTED CIRCUIT BOARD RELAYS

RKA Part Number	Coil Input (VDC)	Coil Res. in Ohms	Coil Nom. Power in mW	Contacts Arrang. Code	Contacts Amp Rating
RKA-1DG -05	5	47	530	SPST-NO Code 1	10•*Δ
-24	24	1,100			
RKA-5DG -05	5	47	530	SPDT Code 1	10•*Δ
-06	6	68			
-12	12	270			
-24	24	1,100			
-48	48	4,400			
RKA-7DZ -05	5	47	720	DPST-NO Code 2	5•*Δ
-12	12	270			
-24	24	1,100			
RKA-7DT -12 (TV-3 rated)	12	200	720	DPST-NO Code 2	5•*Δ
-24	24	820			
RKA-11DZ -05	5	47	530	DPDT Code 2	5•*Δ
-06	6	68			
-09	9	155			
-12	12	270			
-24	24	1,100			
-48	48	4,400			

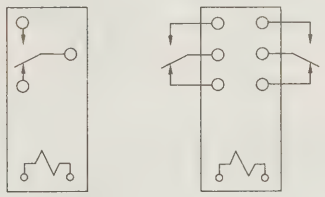
RKA-1D**G**-05 "G" denotes Ag-Ni alloy contacts.
RKA-7D**T**-05 "T" denotes AgCdO contacts rated TV-5 for SPST-NO and TV-3 for DPST-NO types.
RKA-7D**Z**-05 "Z" denotes Ag-Ni alloy contacts.

P.C. BOARD LAYOUTS (BOTTOM VIEWS)



Code 1 **Code 2**

WIRING DIAGRAMS (BOTTOM VIEWS)



Code 1 **Code 2**

Only necessary terminals are present on single throw types.
Note: RKS relay (p.20) is recommended for new designs.

SOCKETS & ACCESSORIES

See RKS sockets on this page.

T90 PRINTED CIRCUIT BOARD RELAYS

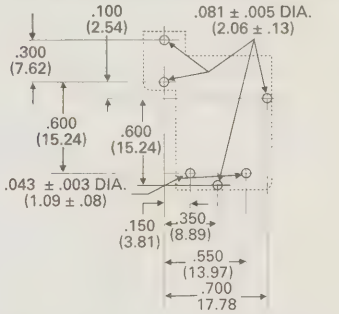
T90 Part Number	Coil Input (VDC)	Coil Res. in Ohms	Coil Nom. Power in mW	Contacts Arrang.	Contacts Amp Rating
Open Style Relays					
T90N1D12 -5	5	27	930	SPST-NO	30•*#
-12	12	155	930		
-24	24	660	870		
T90N1D42 -24	24	660	870	SPST-NO	30•*#
T90N5D11 -24	24	660	870	SPDT	10•*#
T90N5D12 -5	5	27	930	SPDT	20•*#
-12	12	155	930		
-24	24	660	870		
-48	48	2,560	900		
-110	110	13,450	900		
Sealed, Immersion Cleanable Relays					
T90S1D12 -5	5	27	930	SPST-NO	30•*#
-12	12	155	930		
-24	24	660	870		
-110	110	13,450	900		
T90S5D12 -5	5	27	930	SPDT	20•*#
-12	12	155	930		
-24	24	660	870		
-48	48	2,560	900		
-110	110	13,450	900		
T90S1D42 -24	24	660	870	SPDT	20•*#
T90S5D42 -24	24	660	870	SPDT	20•*#

T90**N**5D11-24 "N" denotes open style relay.
T90**S**5D11-24 "S" denotes sealed relay.
T90N5D**1**1-24 "1" denotes Ag contacts.
T90N5D**1**2-24 "2" denotes AgCdO contacts.
T90S5D**4**2-24 "4" denotes UL 873 spacing.

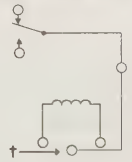
OPTIONAL DUST COVER FOR OPEN-STYLE RELAY

Plastic dust cover may be snapped onto open-style relay after the relay has been assembled to the PC board. Dust cover, when ordered with the relay, is shipped separately. **35C620A**

P.C. BOARD LAYOUT (BOTTOM VIEW)



WIRING DIAGRAM (BOTTOM VIEW



Only necessary terminals are present on single throw models.
† **NOTE:** This terminal not present on UL 873 units.

• Denotes UL # Denotes CSA Accept.
* Denotes CSA Δ Denotes VDE

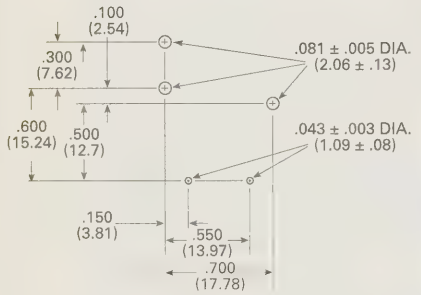
T9A P.C. BOARD & PANEL MOUNT RELAYS

T9A Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
Printed Circuit Board Relays					
T9AS1D12 -5	5	25	1W	SPST-NO	30•*#
-12	12	144			
-18	18	324			
-22	22	484			
-24	24	576			
-48	48	2,304			
-110	110	12,100			
T9AS5D12 -5	5	25	1W	SPDT	20•*#
-12	12	144			
-18	18	324			
-22	22	484			
-24	24	576			
-48	48	2,304			
-110	110	12,100			
P.C.Board Relays w/Q.C. Terminals for Load					
T9AS1D22 -5	5	25	1W	SPST-NO	30•*#
-12	12	144			
-24	24	576			
-48	48	2,304			
-110	110	12,100			
T9AS5D22 -5	5	25	1W	SPDT	20•*#
-12	12	144			
-24	24	576			
-48	48	2,304			
-110	110	12,100			
Panel Mount Relays					
T9AP1D52 -48	48	2,304	1W	SPST-NO	30•*#
T9AP5D52 -12	12	144	1W	SPDT	20•*#
-24	24	576			
-48	48	2,304			

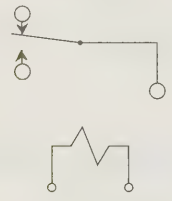
T9A**P**5D52-12 "P" denotes unsealed, plastic dust cover.
T9A**S**5D22-12 "S" denotes immersion cleanable,knock off nib,sealed plastic case.

Note: Panel mount relays have two mtg. slots for #6 screws on 1.980 (50.29) centers.

P.C. BOARD LAYOUT (BOTTOM VIEW)



WIRING DIAGRAM (BOTTOM VIEW)



Only necessary terminals are present on single throw models.

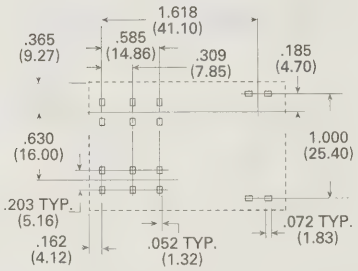
T92 P.C. BOARD & PANEL MOUNT RELAYS

T92 Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
Printed Circuit Board Relays					
T92S7D12 -12	12	86	1.7W	DSPT-NO	30•* Δ¤
-24	24	350			
-48	48	1,390			
-110	110	7,255			
T92S11D12-12	12	86	1.7W	DPDT	30•* Δ¤
-24	24	350			
-48	48	1,390			
-110	110	7,255			
Panel Mount Relays					
T92P7D22 -12	12	86	1.7W	DPST-NO	30•* Δ¤
-24	24	350			
T92S7A22 -24	24	39	4.0VA	DPST-NO	30•* Δ¤
-120	120	950			
-240	240	3800			
T92S7D22 -12	12	86	1.7W	DPST-NO	30•* Δ¤
-24	24	350			
-110	110	7,255			
T92P11D22-12	12	86	1.7W	DPDT	30•* Δ¤
-24	24	350			
T92S11A22-24	24	39	4.0VA	DPDT	30•* Δ¤
-120	120	950			
-240	240	3,800			
T92S11D22-12	12	86	1.7W	DPDT	30•* Δ¤
-24	24	350			
-110	110	7,255			

T92**P**11D22-12 "P" denotes unsealed, plastic dust cover.
T92**S**11D22-12 "S" denotes sealed, plastic cover.
T92S11**A**22-12 "A" denotes AC coil.
T92S11**D**22-12 "D" denotes DC coil.
T92S11D**1**2-12 "1" denotes PC Board mount.
T92S11D**2**2-12 "2" denotes flanged panel mount.
T92S11D2**2**-12 "2" denotes AgCdO contacts.

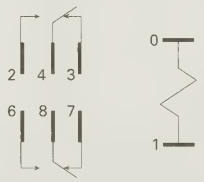
Note: Panel mount relays have two mtg. slots for #8 screws on 2.35 (59.71) centers.

P.C. BOARD LAYOUT (BOTTOM VIEW)



Note: An alternate PC board layout utilizes .075 ± .005 (1.91 ± .13) diameter holes on the same center-to-center spacing shown above. Use of the rectangular holes is recommended for improved solderability.

WIRING DIAGRAM (BOTTOM VIEW)



Only necessary terminals are present on single throw models.

R10 GENERAL PURPOSE RELAYS

R10 Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amps Typ. (Max.)
Socket/Chassis Mount					**With DC Coil**
R10S-E1Y1 -J1.0K	3.2mA	1,000	10mW‡	SPDT	2
-J2.5K	2.0mA	2,500	10mW‡		(3)•*
-J5.0K	1.4mA	5,000	10mW‡		
R10-E1Y1 -SS220	3VDC	220	40mW	SPDT	2
-SS1.0K	6VDC	1,000	36mW		(3)•*
R10-E1P2 -V185	12VDC	185	770mW	DPDT	0.001
-V700	24VDC	700	820mW		(3)•*
R10-E1Z2 -V185	12VDC	185	770mW	DPDT	0.1
-V700	24VDC	700	820mW		(2)•*
R10-E1Z2 -S800	12VDC	800	180mW	DPDT	0.1
					(2)•*
R10S-E1Y2 -J500	6.3mA	500	20mW‡	DPDT	2
-J1.0K	4.5mA	1,000	20mW‡		(3)•*
-J2.5K	2.9mA	2,500	20mW‡		
-J5.0K	2.0mA	5,000	20mW‡		
R10-E1Y2 -V28	5VDC	28	900mW	DPDT	2
-V52	6VDC	52	690mW		(3)•*
-V185	12VDC	185	770mW		
-V700	24VDC	700	820mW		
-V2.5K	48VDC	2,500	920mW		
-V15.0K	115VDC	15,000	880mW		
R10-E1Y2 -J1.0K	8.5mA	1,000	72mW‡	DPDT	2
-J2.5K	5.8mA	2,500	85mW‡		(3)•*
-J5.0K	4.1mA	5,000	84mW‡		
R10-E1M2 -V700	24VDC	700	820mW	DPDT	5
					(5)•*
R10-E1X2 -V28	5VDC	28	900mW	DPDT	5
-V52	6VDC	52	690mW		(5)•*
-V185	12VDC	185	770mW		
-V700	24VDC	700	820mW		
-V2.5K	48VDC	2,500	920mW		
-V15.0K	115VDC	15,000	880mW		
R10-E1X2 -S800	12VDC	800	180mW	DPDT	5
					(5)•*
R10-E1W2 -V185	12VDC	185	770mW	DPDT	7.5
-V700	24VDC	700	820mW		(7.5)•*
R10-E1P4 -V185	12VDC	185	770mW	4PDT	0.001
-V700	24VDC	700	820mW		(3)•*
R10-E1Z4 -V185	12VDC	185	770mW	4PDT	0.1
-V700	24VDC	700	820mW		(2)•*
-V2.5K	48VDC	2,500	920mW		
R10-E1Z4 -J1.0K	13.0mA	1,000	170mW‡	4PDT	0.1
-J2.5K	8.4mA	2,500	176mW‡		(2)•*
R10S-E1Y4 -J1.0K	6.5mA	1,000	40mW‡	4PDT	2
					(3)•*
R10-E1Y4 -V52	6VDC	52	690mW	4PDT	2
-V185	12VDC	185	770mW		(3)•*
-V700	24VDC	700	820mW		
-V2.5K	48VDC	2,500	920mW		
R10-E1Y4 -S450	12VDC	450	320mW	4PDT	2
					(3)•*
R10-E1Y4 -J1.0K	13.0mA	1,000	169mW‡	4PDT	2
-J2.5K	8.4mA	2,500	176mW‡		(3)•*
-J10.0K	4.5mA	10,000	200mW‡		
R10-E1M4 -V700	24VDC	700	820mW	4PDT	5
					(5)•*
R10-E1X4 -V185	12VDC	185	770mW	4PDT	5
-V700	24VDC	700	820mW		(5)•*
-V2.5K	48VDC	2,500	920mW		
-V15.0K	115VDC	15,000	880mW		
R10-E1W4 -V185	12VDC	185	770mW	4PDT	7.5
-V700	24VDC	700	820mW		(7.5)•*
-V2.5K	48VDC	2,500	920mW		
R10-E1P6 -V430	24VDC	430	1.3W	6PDT	0.001
					(3)•*
R10-E1Z6 -V430	24VDC	430	1.3W	6PDT	0.1
-V1.5K	48VDC	1,500	1.5W		(2)•*
-V9.0K	115VDC	9,000	1.5W		
R10-E1Y6 -V90	12VDC	90	1.6W	6PDT	2
-V430	24VDC	430	1.3W		(3)•*
-V1.5K	48VDC	1,500	1.5W		
R10-E1M6 -V430	24VDC	430	1.3W	6PDT	5
					(5)•*
R10-E1X6 -V90	12VDC	90	1.6W	6PDT	5
-V430	24VDC	430	1.3W		(5)•*
-V9.0K	115VDC	9,000	1.5W		
R10-E1Z8 -V350	24VDC	350	1.6W	8PDT	0.1
					(2)•*
Socket/Chassis Mount					**With DC Coil & LED Indicator**
R10L-E1Y2 -V700	24VDC	700	820mW	DPDT	2
					(3)•*
R10L-E1X2 -V185	12VDC	185	770mW	DPDT	5
-V700	24VDC	700	820mW		(5)•*
R10L-E1Y4 -V700	24VDC	700	820mW	4PDT	2
					(3)•*
R10L-E1X4 -V185	12VDC	185	770mW	4PDT	5
-V700	24VDC	700	820mW		(5)•*
R10L-E1X6 -V430	24VDC	430	1.3W	6PDT	5
					(5)•*

R10 Data Continues on the Next Page.

• Denotes UL ¤ Denotes UL Listed ‡ Input power
* Denotes CSA # Denotes CSA Accept. Δ Denotes VDE

R10 GENERAL PURPOSE RELAYS (Cont'd.)

R10 Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Ar-rang.	Contacts Amps Typ. (Max.)
Socket/Chassis Mount					**With AC Coil**
R10-E1P2 -115V	115VAC	9,000	1.5VA	DPDT	0.001 (3)•*
R10-E1Z2 -115V	115VAC	9,000	1.5VA	DPDT	0.1 (2)•*
R10-E1Y2 -115V	115VAC	9,000	1.5VA	DPDT	2 (3)•*
R10-E1X2 -115V	115VAC	9,000	1.5VA	DPDT	5 (5)•*
R10-E1L4 -115V	115VAC	9,000	1.5VA	4PDT	0.0005 (.25)•*
R10-E1P4 -115V	115VAC	9,000	1.5VA	4PDT	0.001 (3)•*
R10-E1Z4 -115V	115VAC	9,000	1.5VA	4PDT	0.1 (2)•*
R10-E1X4 -24V -115V	24VAC 115VAC	500 9,000	1.5VA	4PDT	5 (5)•*
R10-E1X6 -115V	115VAC	7,500	1.5VA	6PDT	5 (5)•*
R10-E1X8 -115V	115VAC	7,500	1.5VA	8PDT	5 (5)•*
Chassis Mount Side Bracket					**With DC Coil**
R10-E6X2 -V185 -V700	12VDC 24VDC	185 700	770mW 820mW	DPDT	5 (5)•*
Chassis Mount Side Bracket					**With AC Coil**
R10-E6X2 -115V	115VAC	9,000	1.5VA	DPDT	5 (5)•*
Octal-Type Socket Mount					**With DC Coil**
R10-T1P2 -V700	24VDC	700	820mW	DPDT	0.001 (3)•*
R10-T1Y2 -J1.0K	8.5mA	1,000	72mW‡	DPDT	2 (3)•*
R10-T2P3 -V700	24VDC	700	820mW	3PDT	0.001 (3)•*
Octal-Type Socket Mount					**With AC Coil**
R10-T1L2 -115V	115VAC	9,000	1.5VA	DPDT	0.0005 (.25)•*
R10-T1P2 -115V	115VAC	9,000	1.5VA	DPDT	0.001 (3)•*
R10-T2P3 -115V	115VAC	9,000	1.5VA	3PDT	0.001 (3)•*
P. C. Board Mount, Unsealed					**With DC Coil**
R10S-E2Y1-J1.0K	3.2mA	1,000	10mW‡	SPDT	2 (3)•*
R10-E2P2 -V185	12VDC	185	770mW	DPDT	0.001 (3)•*
R10S-E2Y2-J2.5K	2.9mA	2,500	20mW‡	DPDT	2 (3)•*
R10-E2Y2 -V185 -V700	12vdc 24VDC	185 700	770mW 820mW	DPDT	2 (3)•*
R10-E2X2 -V185 -V700	12VDC 24VDC	185 700	900mW 820mW	DPDT	5
R10-E2X2 -S3.2K	24VDC	3,200	180mW	DPDT	5 (5)•*
R10-E2W2 -V185 -V700	12VDC 24VDC	185 700	770mW 820mW	DPDT	7.5 (7.5)•*
R10-E2P4 -V185	12VDC	185	770mW	4PDT	0.001 (3)•*
R10-E2Z4 -V700	24VDC	700	820mW	4PDT	0.1 (2)•*
R10-E2Y4 -V185 -V700	12VDC 24VDC	185 700	770mW 820mW	4PDT	2 (3)•*
R10-E2X4 -V185 -V700	12VDC 24VDC	185 700	770mW 820mW	4PDT	5 (5)•*
R10-E2Y6 -V90	12VDC	90	1.6W	6PDT	2 (3)•*
P. C. Board Mount, Unsealed					**With AC Coil**
R10-E2Y2 -115V	115VAC	9,000	1.5VA	DPDT	2 (3)•*
R10-E2X2 -115V	115VAC	9,000	1.5VA	DPDT	5 (5)•*
P. C. Board Mount, Sealed					**With DC Coil**
R10-R2X2 -V185 -V700	12VDC 24VDC	185 700	770mW 820mW	DPDT	5 (5)•*

R10 Data Continues on the Next Column.

R10 GENERAL PURPOSE RELAYS(Cont'd.)

E1X2-V28 "E1" denotes socket/chassis mount relay.

R10-**E2**X2-V28 "E2" denotes unsealed P.C. board relay.

R10-**E6**X2-V700 "E6" denotes chassis mount relay with bracket on side. Mounts via #6-32 stud and locating tab on .437 (11.1) centers.

R10-**R2**X2-V28 "R2" denotes immersion cleanable P.C. board relay.

R10-**T1**P2-V700 "T1" denotes socket mount relay with 8-pin octal-type plug. See KRPA/KRP section (p. 27) for sockets.

R10-**T2**P3-V700 "T2" denotes socket mount relay with 11-pin octal-type plug. See KRPA/KRP section (p. 27 for sockets.

R10**L**-E1Y2-V185 "L" denotes LED in parallel with the coil.

R10**S**-E1Y1-J1.0K "S" denotes super sensitive R10.

R10-T1**L**2-V28 "L" denotes bifurcated crossbar Au-Pt-Ag alloy contacts.

R10-E1**P**2-V185 "P" denotes bifurcated crossbar Au overlay on Ag contacts.

R10-E1**Z**2-V185 "Z" denotes bifurcated Ag contacts.

R10-E1**Y**2-V28 "Y" denotes single Ag contacts.

R10-E1**M**2-V700 "M" denotes bifurcated AgCdO contacts.

R10-E1**X**2-V28 "X" denotes single AgCdO contacts.

R10-E1**W**2-V700 "W" denotes single AgCdO contacts.

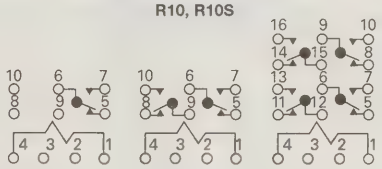
R10-E1X2-**V**28 "V" denotes DC voltage actuated coil.

R10-E1X2-**S**800 "S" denotes sensitive DC voltage actuated coil.

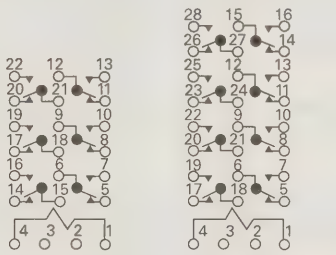
R10-E1Y2-**J**1.0K "J" denotes DC current actuated coil.

WIRING DIAGRAMS (Bottom Views)

R10, R10S



1 Form C (SPDT) 2 Form C (DPDT) 4 Form C (4PDT)



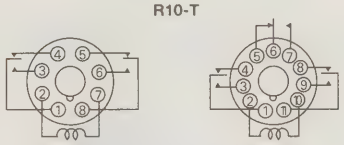
6 Form C (6PDT) 8 Form C (8PDT)

R10L

R10 AC Coil

Note: Observe polarity indicated when wiring R10L.

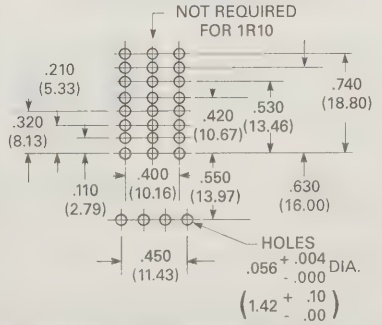
R10-T



2 Form C (DPDT) 3 Form C (3PDT)

Note: R10-T relays and KRPA/KRP relays are identical in size, and they are similar in appearance. See KRPA/KRP photo and dimensions on page 7.

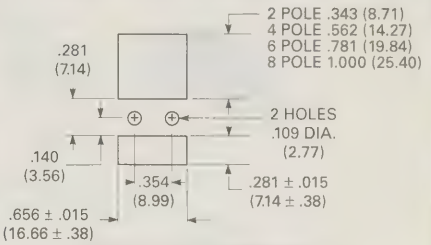
P.C. BOARD LAYOUT (Component Side of Board)



R10 Data Continues on the Next Column.

R10 GENERAL PURPOSE RELAYS (Cont'd.)

PANEL CUTOUT FOR RELAY OR SOCKET



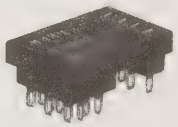
SOCKETS FOR R10 SERIES RELAYS

Grounding Provisions Pre-Installed on Sockets (not for use at 5A AC and above)

Grounding Strip: Mounting stud of relay contacts grounding strip. Grounding strip is grounded with screw or rivet through round hole in socket.

Grounding Terminal (PC sockets only): Mounting stud of relay contacts ground terminal through square hole in socket.

SOLDER OR PC TERMINAL SOCKET

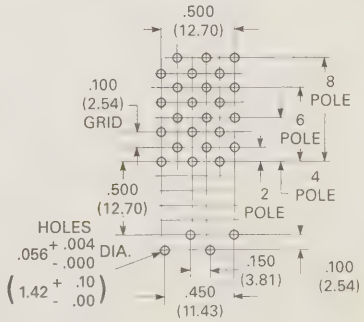


Rugged, molded socket body retains floating terminals of either solder or PC pin configuration. PC terminal sockets are offered with pins in staggered or in-line configurations. Tin-plated and gold-flashed terminal finishes are available.

Part Number	Terminal Finish	No. of Poles	Grounding Provision	Hold Down Spring†
Solder Terminal Sockets				
27E125•*	Tin-plated	2	Strip	20C249
27E126•*	Tin-plated	4	Strip	20C250
27E127•*	Tin-plated	6	Strip	20C251
27E162•*	Tin-plated	2	None	20C249
27E163•*	Tin-plated	4	None	20C250
Staggered PC Terminal Sockets				
27E128•*	Tin-plated	2	Strip	20C249
27E709•*	Gold-flashed	2	Strip	20C249
27E129•*	Tin-plated	4	Strip	20C250
27E130•*	Tin-plated	6	Strip	20C251
27E193•*	Tin-plated	2	Terminal	20C249
27E194•*	Tin-plated	4	Terminal	20C250
27E212•*	Tin-plated	2	None	20C249
27E213•*	Tin-plated	4	None	20C250
27E714•*	Gold-flashed	4	None	20C250
In-Line PC Terminal Sockets (Same Layout as Relay)				
27E342•*	Tin-plated	2	Strip	20C249
27E629•*	Tin-plated	4	Strip	20C250
27E630•*	Tin-plated	6	Strip	20C251

Caution: Printed circuit sockets are manufactured with "floating" (loose) terminals. This permits them to align with holes in the printed cicuit board and with the relay terminals. During the mounting and soldering of the socket, vertical float should be eliminated and the terminals seated on the board. (This may be accomplished by inserting a dummy relay in the socket.) Failure to eliminate float may cause fracture of the solder joint or separation of the copper conductor from the printed circuit board when a relay is inserted in the socket after soldering.

PC BOARD LAYOUT FOR STAGGERED TERMINALS (Component Side of Board)



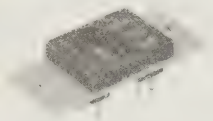
R10 Data Continues on the Next Page.

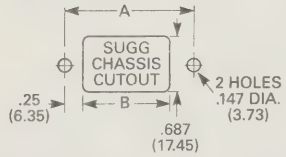
• Denotes UL
* Denotes CSA

† Hold down spring not included with sockets. Hold down spring noted is for use with R10 & R10L.

R10 GENERAL PURPOSE RELAYS (Cont'd.)

FLANGE MOUNT SOCKET

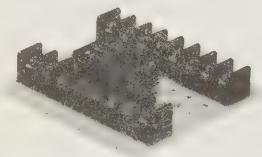




Individual R10 sockets pre-assembled on steel mounting plates provide a simple, sturdy method of mounting solder terminal R10 relays. Each socket is equipped with tin-plated terminals and a grounding strip. The grounding strip is easily removed in applications where grounding is not desirable. Grounding is not recommended for currents of 5A AC and above.

Part Number	No. of Poles	Hold Down Spring†	Mounting Dim. A	Mounting Dim. B
Flange Mount, Solder Terminal Sockets				
27E446•*	2	20C249	1.437 (36.5)	.937 (23.8)

TRACK MOUNT SOCKET



Provides front wiring, screw terminal connections. No grounding provision. Use insulator 40G432 (order separately) between socket and chassis. All are 2.75 (69.85) wide x .592 (15.0) high, and have .187 (4.75) dia. mtg. holes. Length, mtg. centers vary.

Part Number	No. of Poles	Hold Down Spring†	Overall Length	Mtg. Centers
Track Mount, Screw Terminal Sockets				
27E460•*	2	20C249	2.23 (56.6)	1.80 (45.72)
27E461•*	4	20C250	2.83 (71.9)	2.125 (53.98)
27E462•*	6	20C251	3.83 (97.3)	2.812 (71.42)

RELAY HOLD DOWNS

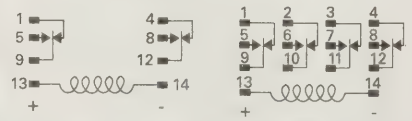
Part Number	No. of Poles	Description
Hold Downs		
20C249	2	Wire Hold Down Spring for R10, R10L
20C250	4	Wire Hold Down Spring for R10, R10L
20C251	6	Wire Hold Down Spring for R10, R10L, R12
20C259	All	Hold Down Strap (PC sockets only)

KH/KHA GENERAL PURPOSE RELAYS

KH/KHA Part Number		Coil Input	Coil DC Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
Low Cost, Automated KHA Series Socket Mount						
KHAU-11A11	-120	120	3,900	1.2VA	DPDT	3•*
KHAU-11D11	-24	24	650	0.9W	DPDT	3•*
KHAU-17A16	-24	24	160	1.2VA	4PDT	1•*
	-120	120	3,900			
KHAU-17D16	-12	12	160	0.9W	4PDT	1•*
	-24	24	650			
KHAU-17A13	-120	120	3,900	1.2VA	4PDT	2•*
KHAU-17D13	-24	24	650	0.9W	4PDT	2•*
KHAU-17A18	-120	120	3,900	1.2VA	4PDT	3•*
KHAU-17A11	-6	6	10.5	1.2VA	4PDT	3•*
	-12	12	43			
	-24	24	160			
	-120	120	3,900			
KHAU-17D11	-5	5	28	0.9W	4PDT	3•*
	-6	6	40			
	-12	12	160			
	-24	24	650			
	-48	48	2,600			
	-110	110	11,000			
KHAU-17A12	-120	120	3,900	1.2VA	4PDT	5•*
KHAU-17D12	-12	12	160	0.9W	4PDT	5•*
	-24	24	650			
	-48	48	2,600			
	-110	110	11,000			
Socket Mount KHA With Indicator Lamp						
KHAU-17A11N	-120	120	3,900	1.2VA	4PDT	3•*
P.C. Board Mount KHA						
KHAE-17D12	-24	24	650	0.9W	4PDT	5•*
KH Series Socket Mount						
KHU-17A16	-120	120	3,900	1.2VA	4PDT	1•*
KHU-17D16	-12	12	160	0.9W	4PDT	1•*
	-24	24	650			
KHU-17A13	-120	120	3,900	1.2VA	4PDT	2•*
KHU-17D13	-24	24	650	0.9W	4PDT	2•*
KHU-17A18	-120	120	3,900	1.2VA	4PDT	3•*
KHU-17D18	-24	24	650	0.9W	4PDT	3•*
KHU-17A11	-12	12	43	1.2VA	4PDT	3•*
	-24	24	160			
	-120	120	3,900			
KHU-17D11	-5	5	28	0.9W	4PDT	3•*
	-6	6	40			
	-12	12	160			
	-24	24	650			
	-48	48	2,600			
	-110	110	11,000			
KHU-17A12	-120	120	3,900	1.2VA	4PDT	5•*
KHU-17D12	-12	12	160	0.9W	4PDT	5•*
	-24	24	650			
	-110	110	11,000			
KH Socket Mount With Indicator Lamp						
KHU-17A11N	-120	120	3,900	1.2VA	4PDT	3•*
KHS Socket Mount, Hermetically Sealed						
KHS-17A13	-120	120	3,900	1.2VA	4PDT	2•*
KHS-17D13	-24	24	650	0.9W	4PDT	2•*
KHS-17A11	-24	24	160	1.2VA	4PDT	3•*
	-120	120	3,900			
KHS-17D11	-6	6	40	0.9W	4PDT	3•*
	-12	12	160			
	-24	24	650			
	-48	48	2,600			
	-110	110	11,000			
KHS-17A12	-120	120	3,900	1.2VA	4PDT	5•*
KHS-17D12	-12	12	160	0.9W	4PDT	5•*
	-24	24	650			

KHAU-17**A**12-24 "A" denotes AC coil.
KHAU-17**D**12-24 "D" denotes DC coil.
KHAU-17D**1**1-24 "1" denotes Ag contacts.
KHAU-17D**2**-24 "2" denotes AgCdOcontacts.
KHAU-17D**3**-24 "3" denotes Au-Ag-Ni contacts.
KHAU-17D**6**-24 "6" denotes bifurcated crossbar contacts of Au overlay Ag.
KHAU-17D**8**-24 "8" denotes Au diffused Ag contacts.

WIRING DIAGRAMS (Bottom Views)

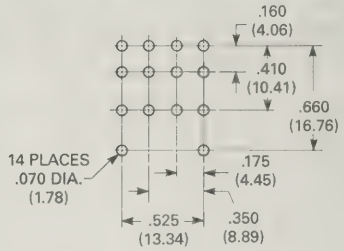


2 Form C (DPDT) **4 Form C (4PDT)**

KH/KHA Data Continues in the Next Column.

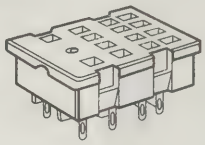
KH/KHA GEN. PURPOSE RELAYS (Cont'd.)

P.C. BOARD LAYOUT (Bottom View)



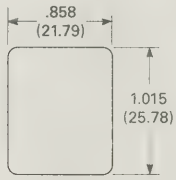
OPTIONAL SOCKETS & ACCESSORIES

SOLDER TERMINAL SOCKET



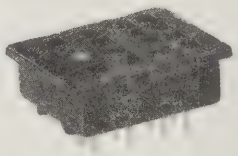
Solder terminal socket with grounding provision. **27E006•**

CHASSIS CUTOUT FOR SOLDER TERMINAL SOCKET



Recommended Chassis Thickness .031 (.79) to .062 (1.57)

PC TERMINAL SOCKETS



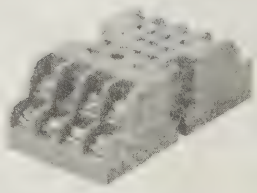
Printed circuit board terminal socket with grounding provision. Terminal length .375 (9.53). **27E007•**

Printed circuit board terminal socket without grounding provision. Terminal length .375 (9.53). **27E023•**

MOUNTING STRIP

Mounting strip will mount eight 27E006 sockets in one length of alumimum strip measuring 10.9 x 2.25 x .062 (277 x 57.2 x 1.57). **37D633**

SCREW TERMINAL SOCKETS

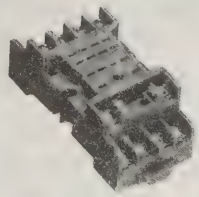


Molded screw terminal socket measures 2.363 x 1.22 x .800 high (60.02 x 31.0 x 20.32). Two .140 (3.56) wide mounting slots on .94 (23.88) centers. Rated 5A @ 300VAC. **27E166•***

KH/KHA Socket Data Continues on the Next Page.

• Denotes UL
* Denotes CSA
† Hold down spring not included with sockets. Hold down spring noted is for use with R10 & R10L.

KH/KHA GEN. PURPOSE RELAYS (Cont'd.)



DIN rail mount, polyamide screw terminal socket designed to snap onto track without tools. Measures 2.441 x 1.181 x .984 high (62 x 30 x 25). Also has two .165 (4.2) wide mounting slots on 1.024 (26) centers. Rated 7A @ 300VAC, meets UL 94V-0. Ships with two 20C317 clips to secure relay hold-down to socket base. **27E894•***

HOLD-DOWN SPRINGS
Hold-down spring for use with solder or printed circuit terminal sockets listed above. **20C217**

Hold-down spring for use with screw terminal sockets listed above. **20C297**

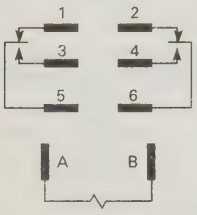
SEE ACCESSORIES (P. 37) FOR MTG. TRACK & CLIPS

K10 GENERAL PURPOSE RELAYS

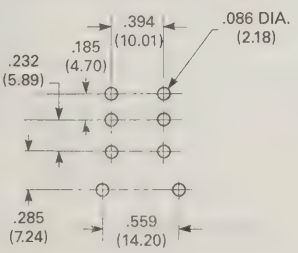
K10 Part Number	Coil Input	Coil DC Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
Socket Mount K10 Relays					
K10P-11A15 -6	6	10.5	1.2VA	DPDT	15•*
-12	12	43			
-24	24	160			
-48	48	668			
-120	120	3,900			
K10P-11D15 -6	6	40	0.9W	DPDT	15•*
-12	12	160			
-24	24	650			
-110	110	11,000			
Top-Flange Mount K10 Relays					
K10P-11AT5-120	120	3,900	1.2VA	DPDT	15•*
K10P-11DT5-12	12	160	0.9W	DPDT	15•*
-24	24	650			
P.C. Board Mount K10 Relays					
K10P-11D55-12	12	160	0.9W	DPDT	15•*
-24	24	650			
-110	110	11,000			

K10P-11**A**15-24 "A" denotes AC coil.
K10P-11**D**15-24 "D" denotes DC coil.
K10P-11A**1**5-120 "1" denotes socket mount relay.
K10P-11AT**5**-120 "T" denotes top-flange mount case with mtg. slots on 1.48 (37.6) centers.
K10P-11D**5**5-12 "5" denotes P.C. terminals.

WIRING DIAGRAM (Bottom View)



P.C. BOARD LAYOUT (Bottom View)



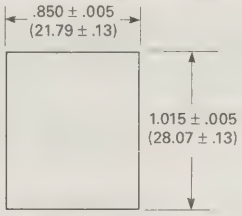
K10 Data Continues in the Next Column.

K10 GENERAL PURPOSE RELAYS (Cont'd.)

OPTIONAL SOCKETS & ACCESSORIES

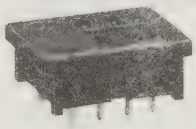
SOLDER TERMINAL SOCKET
Solder terminal socket rated 10A, with integral socket retainer.
27E488•*

CHASSIS CUTOUT FOR SOLDER TERMINAL SOCKET



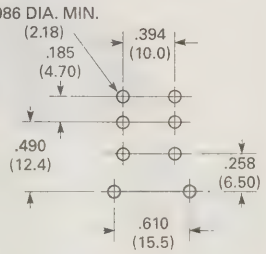
Recommended Chassis Thickness .039 (.99) to .079 (2.01)

PC TERMINAL SOCKET



Printed circuit board terminal socket rated 10A. **27E489•***

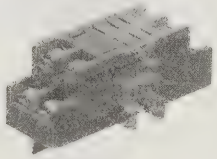
PC BOARD LAYOUT FOR SOCKET



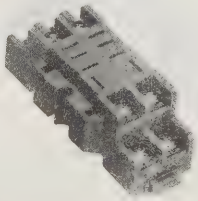
Note:
PC terminal socket will also fit PC board layout for relay. However, in order to accomplish this, terminals must be formed accordingly.

MOUNTING STRIP
Mounting strip will mount eight 27E488 sockets in one length of alumimum strip measuring 10.9 x 2.25 x .062 (277 x 57.2 x 1.57).
37D633

SCREW TERMINAL SOCKETS



Molded screw terminal socket measures 2.650 x 1.409 x .985 high (67.31 x 35.79 x 25.02). Two .166 (4.22) wide mounting slots on 1.143 (29.03) centers. Rated 10A @ 300VAC.
27E487•*



DIN rail mount, polyamide screw terminal socket designed to snap onto track without tools. Measures 2.638 x 1.181 x .984 high (67 x 30 x 25). Also has two .165 (4.2) wide mounting slots on 1.024 (26) centers. Rated 10A, meets UL 94V-0. Ships with two 20C317 clips to secure relay hold-down to socket base. **27E895•***

HOLD-DOWN SPRINGS
Hold-down spring for use with solder or printed circuit terminal sockets listed above. **20C217**

Hold-down spring for use with screw terminal sockets listed above. **20C297**

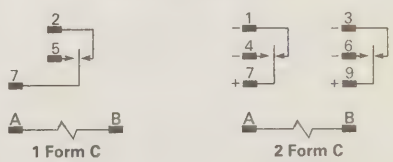
SEE ACCESSORIES (P. 37) FOR MTG. TRACK & CLIPS

KUP GENERAL PURPOSE RELAYS

KUP Part Number	Coil Input	Coil DC Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
Socket Mount					
KUP-5A15 -24	24	85	2VA	SPDT	10•*
-120	120	2,250			
-240	240	9,110			
KUP-5D15 -12	12	120	1.2W	SPDT	10•*
-24	24	472			
KUP-11A11 -120	120	2,250	2VA	DPDT	5•*
KUP-11D11 -24	24	472	1.2W	DPDT	5•*
KUP-11A15 -6	6	6	2VA	DPDT	10•*
-12	12	24			
-24	24	85			
-120	120	2,250			
-240	240	9,110			
KUP-11D15 -5	5	21	1.2W	DPDT	10•*
-12	12	120			
-24	24	472			
-110	110	10,000			
KUP-14A11 -120	120	1,700	2.75VA	3PDT	5•*
KUP-14D11 -24	24	472	1.2W	3PDT	5•*
KUP-14A15 -12	12	18	2.75VA	3PDT	10•*
-24	24	72			
-120	120	1,700			
-240	240	7,200			
KUP-14D15 -6	6	32.1	1.2W	3PDT	10•*
-12	12	120			
-24	24	472			
-48	48	1,800			
-110	110	10,000			
KUP-17A19 -120	120	1,700	2.75VA	4PDT	10•*
KUP-17D19 -24	24	320	1.8W	4PDT	10•*
Socket Mount with Push-to-Test Button					
KUP-11A25 -120	120	2,250	2VA	DPDT	10•*
KUP-14A25 -120	120	1,700	2.75VA	3PDT	10•*
KUP-14D25 -24	24	472	1.2W	3PDT	10•*
Socket Mount with Indicator Lamp					
KUP-11A35 -120	120	2,250	2VA	DPDT	10•*
KUP-11D35 -24	24	472	1.2W	DPDT	10•*
KUP-14A35 -120	120	1,700	2.75VA	3PDT	10•*
KUP-14D35 -24	24	472	1.2W	3PDT	10•*
Socket Mount with Test Button & Indicator Lamp					
KUP-14A45 -120	120	1,700	2.75VA	3PDT	10•*
Side-Flange Mount					
KUP-5A55 -120	120	2,250	2VA	SPDT	10•*
-240	240	9,110			
KUP-5D55 -12	12	120	1.2W	SPDT	10•*
-24	24	472			
KUP-11A55 -24	24	85	2VA	DPDT	10•*
-120	120	2,250			
KUP-11D55 -6	6	32.1	1.2W	DPDT	10•*
-12	12	120			
-24	24	472			
-48	48	1,800			
-110	110	10,000			
KUP-14A55 -6	6	4.2	2.75VA	3PDT	10•*
-12	12	18			
-24	24	72			
-120	120	1,700			
-240	240	7,200			
KUP-14D55 -12	12	120	1.2W	3PDT	10•*
-24	24	472			
-110	110	10,000			
KUP-17A55 -120	120	1,700	2.75VA	4PDT	10•*
KUP-17D55 -24	24	320	1.8W	4PDT	10•*
Top-Flange Mount					
KUP-11AT5 -120	120	2,250	2VA	DPDT	10•*
P.C. Board Mount					
KUP-14D17 -24	24	472	1.2W	3PDT	10•*

KUP-5**D**15-24 "D" denotes DC coil.
KUP-11A**5**5-120 "5" denotes side-flange mount case with mtg. slots on 2.5 (63.5) centers.
KUP-11AT**5**-120 "T" denotes top-flange mount case with mtg. slots on 1.713 (43.5) centers.
KUP-11A**1**1-120 "1" denotes Ag contacts, .187 (4.75) quick connect terminals.
KUP-11A**5**15-120 "5" denotes AgCdO contacts, .187 (4.75) quick connect terminals.
KUP-14D**7**-120 "7" denotes AgCdO contacts, .047 (1.19) P.C. terminals.
KUP-17D**9**-120 "9" denotes AgCdO contacts, .110 (2.8) quick connect terminals.

WIRING DIAGRAMS (Bottom View)

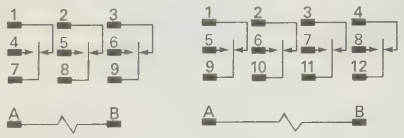


KUP Data Continues on the Next Page.

• Denotes UL
* Denotes CSA

KUP GENERAL PURPOSE RELAYS (Cont'd.)

WIRING DIAGRAMS (Bottom View)



3 Form C (3PDT) | 4 Form C (4PDT)

P.C. BOARD LAYOUT (Bottom View)

See P.C. Board Layout for 3 Pole Socket (Below). Relay layout is identical, except the two larger holes for mounting rivets or screws are not necessary.

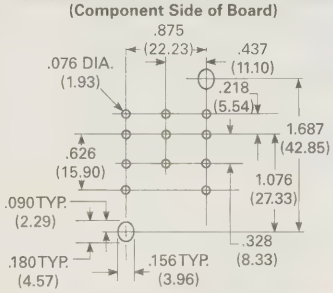
OPTIONAL SOCKETS AND ACCESSORIES

HARD MOUNT SOCKETS

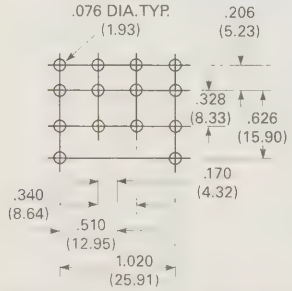
Molded nylon sockets mount to chassis with rivets or screws. Solder, quick connect or PC terminals. 3 pole sockets are rated 15A, accept .187 (4.75) quick connect relays. 4 pole sockets are rated 10A, accept .110 (2.79) quick connect relays.

Part Number	No. of Poles	Terminal Type
27E043•*	3	Solder Eyelets
27E067•*	3	.187 (4.75) Male Quick Connects
27E046•*	3	Printed Circuit Terminals
27E419•	4	Printed Circuit Terminals

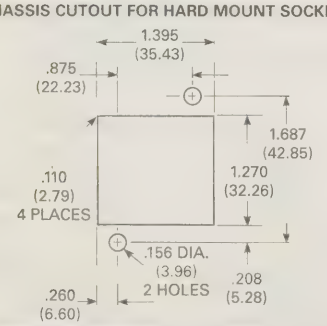
PC BOARD LAYOUT FOR 3 POLE SOCKETS (Component Side of Board)



PC BOARD LAYOUT FOR 4 POLE SOCKETS (Component Side of Board)



CHASSIS CUTOUT FOR HARD MOUNT SOCKETS



KUP Socket Data Continues in the Next Column.

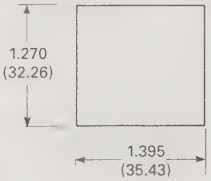
KUP GENERAL PURPOSE RELAYS (Cont'd.)

SNAP-IN SOCKETS

Nylon sockets snap into chassis from the front or back. No rivets or screws needed. Quick connect terminals. 15A rated, 3 pole sockets accept .187 (4.75) quick connects.

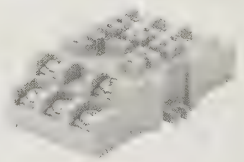
Part Number	No. of Poles	Terminal Type
27E396•	3	.187 (4.75) Male Quick Connects

CHASSIS CUTOUT FOR SNAP-IN SOCKETS

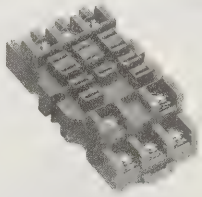


Recommended chassis thickness is .031 to .062 (.79 to 1.57).

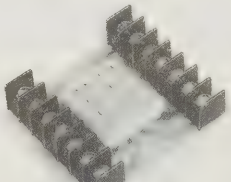
SCREW TERMINAL SOCKETS



Molded screw terminal socket for relays through 3 poles measures 3.150 x 1.9 x .895 high (80 x 48.3 x 22.73). Two .156 (3.96) wide mounting slots on 1.7 (43.18) centers. Rated 15A @ 300VAC. **27E121•***



DIN rail mount, polyamide screw terminal socket for relays through 3 poles is designed to snap onto track without tools. Measures 2.992 x 1.693 x .984 high (76 x 43 x 25). Also has two .165 (4.2) wide mounting slots on 1.457 (37) centers. Rated 15A, meets UL 94V-0. Ships with two 20C317 clips to secure relay hold-down to socket base. **27E893•***



Screw terminal socket for 4 pole relays is 2.750 x 3.5 x .832 high (80 x 48.3 x 21.13). Two .156 (3.96) dia.mounting holes on 2.25 (57.15) centers. Rated 10A @ 300VAC. **27E867•**

HOLD-DOWN HARDWARE

Snap-in hold-down spring for use with all sockets listed above except 27E121 and 27E893. **20C254**

Hold-down spring for use with hard mount sockets listed above is held in place by socket mtg. hardware. **20C228**

Hold-down spring for use with 27E893 DIN rail screw terminal socket. **20C318**

Hold-down clip for use with 27E121 screw terminal socket. 2 required per socket. **20C314**

SEE ACCESSORIES (P. 37) FOR MTG. TRACK & CLIPS

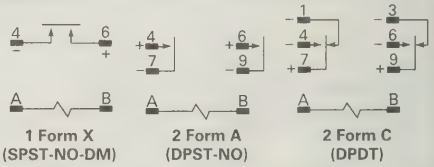
KUEP HIGH DC VOLTAGE GP RELAYS

KUEP Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
KUEP-3A15 -120	120	2,250	2.0VA	SPST-NO-DM	10•*
KUEP-3D15 -12	12	120	1.2W	SPST-NO-DM	10•*
-24	24	472			
-110	110	10,000			
KUEP-7D15 -12	12	80	1.8W	DPST-NO	5
-24	24	320			
KUEP-11A15 -120	120	1,700	2.7VA	DPDT	3
KUEP-11D15 -12	12	80	1.8W	DPDT	3
-24	24	320			

KUEP-3**A**15-120 "A" denotes AC coil.
KUEP-3**D**15-24 "D" denotes DC coil.

Note: See KUP section on this page for sockets.

WIRING DIAGRAMS (Bottom View)



1 Form X (SPST-NO-DM) | 2 Form A (DPST-NO) | 2 Form C (DPDT)

Note: Recommend load polarity be observed for optimum arc suppression.

KUIP HIGH COIL ISOLATION GP RELAYS

KUIP Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
KUIP-5A55-120	120	2,250	2.0VA	SPDT	10•*Δ
KUIP-11A55 -120	120	2,250	2.0VA	DPDT	10•*Δ
KUIP-11D55 -12	12	120	1.2W	DPDT	10•*Δ
-24	24	472			
KUIP-14A15 -120	120	1,700	2.7VA	3PDT	10•*Δ
KUIP-14D15 -12	12	120	1.2W	3PDT	10•*Δ
-24	24	472			

KUIP-11**A**55-120 "A" denotes AC coil.
KUIP-11**D**55-24 "D" denotes DC coil.
KUIP-14A**1**5-120 "1" denotes socket mount relay with .187 (4.75) terminals. See KUP section on this page for sockets.
KUIP-11A**5**5-120 "5" denotes flange mount relay with mtg. slots on 2.5 (63.5) centers, .25 (6.35) terminals.

WIRING DIAGRAMS (Bottom View)
Wiring is identical to that for KUP on this page.

KUGP HIGH CONTACT ISOLATION RELAYS

KUGP Part Number	Coil Input (VDC)	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
KUGP-7D55 -24	24	472	1.8W	DPST-NO	10•*Δ

KUGP-7D**55**-24 "55" denotes flange mount relay with mtg. slots on 2.5 (63.5) centers, .187 (4.75) terminals.

WIRING DIAGRAM (Bottom View)
Wiring is identical to that for KUEP. See above.

KUMP HIGH POWER GP RELAYS

KUMP Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
KUMP-11A18 -24	24	72	2.7VA	DPDT	15•*
-120	120	1,700			
-240	240	7,200			
KUMP-11D18 -12	12	120	1.2W	DPDT	15•*
-24	24	472			
-110	110	10,000			
KUMP-14A18 -24	24	72	2.7VA	3PDT	15•*
-120	120	1,700			
KUMP-14D18 -12	12	120	1.2W	3PDT	15•*
-24	24	472			

KUMP-11**A**18-120 "A" denotes AC coil.
KUMP-11**D**18-24 "D" denotes DC coil.
KUMP-11D**18**-24 "18" denotes socket mount relay with .187 (4.75) terminals. See KUP section on this page for sockets.
KUMP-11D**5G**-24 "5G" denotes flange mount relay with mtg. slots on 2.5 (63.5) centers, .25 (6.35) terminals.

WIRING DIAGRAMS (Bottom View)
Wiring is identical to that for KUP on this & previous page.

• Denotes UL
* Denotes CSA Δ Denotes VDE

KRP/KRPA GENERAL PURPOSE RELAYS

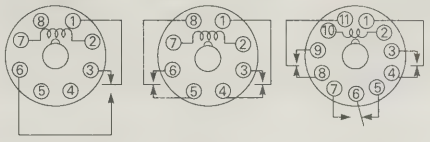
KRP/A Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
Automated KRPA Relays					
KRPA-5AY -120	120	2,250	2VA	SPDT	5•*
KRPA-5AG -24	24	85	2VA	SPDT	10•*
-120	120	2,250			
KRPA-5DY -12	12	120	1.2W	SPDT	5•*
-24	24	472			
KRPA-5DG -6	6	32	1.2W	SPDT	10•*
-12	12	120			
-24	24	472			
-110	110	10,000			
KRPA-11AY -6	6	6	2VA	DPDT	5•*
-12	12	24			
-24	24	85			
-120	120	2,250			
-240	240	9,110			
KRPA-11AG -6	6	6	2VA	DPDT	10•*
-12	12	24			
-24	24	85			
-120	120	2,250			
-240	240	9,110			
KRPA-11DY -12	12	120	1.2W	DPDT	5•*
-24	24	472			
-110	110	10,000			
KRPA-11DG -6	6	32	1.2W	DPDT	10•*
-12	12	120			
-24	24	472			
-48	48	1,800			
-110	110	10,000			
KRPA-14AY -24	24	85	2VA	3PDT	5•*
-120	120	2,250			
-240	240	9,110			
KRPA-14AG -12	12	24	2VA	3PDT	10•*
-24	24	85			
-120	120	2,250			
-240	240	9,110			
KRPA-14DY -24	24	472	1.2W	3PDT	5•*
KRPA-14DG -12	12	120	1.2W	3PDT	10•*
-24	24	472			
-48	48	1,800			
-110	110	10,000			
KRPA Relay with Indicator Lamp					
KRPA-11AN -12	12	24	2VA	DPDT	10
-24	24	85			
-120•*	120	2,250			
-240•*	240	9,110			
KRPA-11DN -12	12	120	1.2W	DPDT	10
-24	24	472			
-110•*	110	10,000			
KRPA-14AN -24	24	85	2VA	3PDT	10
-120•*	120	2,250			
-240•*	240	9,110			
KRPA-14DN -24	24	472	1.2W	3PDT	10
KRP Relays					
KRP-5AG -120	120	2,250	2VA	SPDT	10•*
KRP-11AY -120	120	2,250	2VA	DPDT	5•*
KRP-11AG -6	6	6	2VA	DPDT	10•*
-12	12	24			
-24	24	85			
-120	120	2,250			
-240	240	9,110			
KRP-11DY -12	12	120	1.2W	DPDT	5•*
-24	24	472			
KRP-11DG -12	12	120	1.2W	DPDT	10•*
-24	24	472			
-48	48	1,800			
-110	110	10,000			
-125	125	13,000			
KRP-14AY -120	120	2,250	2VA	3PDT	5•*
KRP-14AG -24	24	85	2VA	3PDT	10•*
-120	120	2,250			
-240	240	9,110			
KRP-14DG -12	12	120	1.2W	3PDT	10•*
-24	24	472			
-110	110	10,000			
KRP Relay with Indicator Lamp					
KRP-11AN -24	24	85	2VA	DPDT	10
-120•*	120	2,250			
-240•*	240	9,110			
KRP-11DN -12	12	120	1.2W	DPDT	10
-24	24	472			
-110•*	110	10,000			
KRPA-14AN -120•*	120	2,250	2VA	3PDT	10
KRPA-14DN -24	24	472	1.2W	3PDT	10

KRPA-5**A**G-24 "A" denotes AC coil.
KRPA-5**D**G-24 "D" denotes DC coil.
KRPA-5**A**Y-24 "Y" denotes Ag contacts.
KRPA-5**A**G-24 "G" denotes AgCdO contacts.
KRPA-11**AN**-24 "N" denotes neon indicator lamp, AgCdO contacts.

KRP/KRPA Data Continues in the Next Column.

KRP/KRPA GEN. PURPOSE RELAYS (Cont'd.)

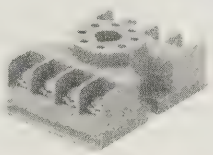
WIRING DIAGRAMS (Bottom Views)



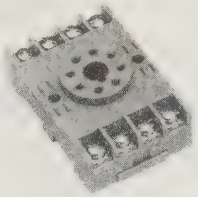
1 Form C (SPDT) **2 Form C (DPDT)** **3 Form C (3PDT)**

OPTIONAL SOCKETS & HOLD DOWN SPRINGS

8-PIN OCTAL SOCKETS

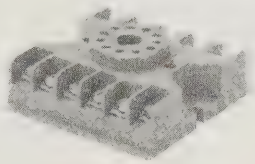


Molded glass-filled polyester screw terminal socket measures 1.572 x 2.385 x .925 high (39.93 x 60.58 x 23.5). Two .156 (3.96) wide mounting slots on 1.296 (32.92) centers. Rated 10A @ 300VAC. **27E122•***

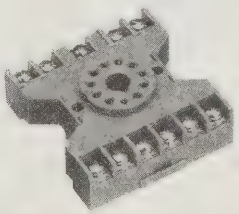


DIN rail mount, polyamide screw terminal socket is designed to snap onto track without tools. Measures 1.575 x 2.362 x .866 high (40 x 60 x 22). Also has two .165 (4.2) dia. mounting holes on 1.299 (33) centers. Rated 10A @ 300VAC and meets UL94V-0. Ships with two 20C317 clips to secure relay hold-down to socket base. **27E891•***

11-PIN OCTAL SOCKETS



Molded glass-filled polyester screw terminal socket measures 2.322 x 2.385 x .925 high (58.98 x 60.58 x 23.5). Two .156 (3.96) wide mounting slots on 2.060 (52.32) centers. Two .156 (3.96) dia. mounting holes on 1.296 (32.92) centers. Rated 10A @ 300VAC. **27E123•***



DIN rail mount, polyamide screw terminal socket is designed to snap onto track without tools. Measures 1.575 x 2.362 x .866 high (40 x 60 x 22). Also has two .165 (4.2) dia. mounting holes on 1.299 (33) centers. Rated 10A @ 300VAC and meets UL94V-0. Ships with two 20C317 clips to secure relay hold-down to socket base. **27E892•***

HOLD DOWN SPRINGS

Hold down spring for use with KRP/KRPA relays in 27E122 or 27E123 sockets. Use two 21B212 standoffs (order separately) per socket when using this spring. **20C176**

Hold down spring for use with KRP/KRPA relays in 27E891 or 27E892 DIN rail mount sockets. **20C318**

SEE ACCESSORIES (P. 37) FOR MTG. TRACK & CLIPS

KR-E HERMETICALLY SEALED GP RELAYS

KR-E Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
KR-11AE -120	120	2,250	2VA	DPDT	5•
KR-11AGE -120	120	2,250	2VA	DPDT	10•
KR-11DE -24	24	472	1.2W	DPDT	5•
KR-11DGE -12	12	120	1.2W	DPDT	10•
-24	24	472	1.2W	DPDT	10•
KR-14AGE -120	120	2,250	2VA	3PDT	10•
KR-14DGE -24	24	472	1.2W	3PDT	10•

KR-11**A**E-120 "A" denotes AC coil.
KR-11**D**E-24 "D" denotes DC coil.

Note: See KRPA/KRP section this page for sockets.

WIRING DIAGRAMS (Bottom View)

2 Form C (DPDT) **3 Form C (3PDT)**

Note: Models with 3 Form C contacts have pins 5 & 6 reversed (as shown above) as compared to other KRP, KRPA and KAP series relays.

KR-3H/KRP-3H POWER GP RELAYS

KR3-H Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
Open Style Relays					
KR-3AH -120	120	2,250	2VA	SPST-NO-DM	20•
KR-3DH -24	24	472	1.2W	SPST-NO-DM	20•
Enclosed Relays					
KRP-3AH -120	120	2,250	2VA	SPST-NO-DM	20•
KRP-3DH -12	12	120	1.2W	SPST-NO-DM	20•
-24	24	472			

KR**P**-3AH-120 "P" denotes polycarbonate cover with octal plug. See KRPA/KRP section this page for sockets.
KRP-3**A**H-120 "A" denotes AC coil.
KRP-3**D**H-24 "D" denotes DC coil.

Note: Open-style KR relays mount via a #6-32 threaded stud and a locating tab on .437 (11.1) centers.

KRP-3_H WIRING DIAGRAM (Bottom View)

Note: Terminals 2, 3 & 4 should be connected together on socket, as should terminals 5, 6 & 7.

• Denotes UL
* Denotes CSA

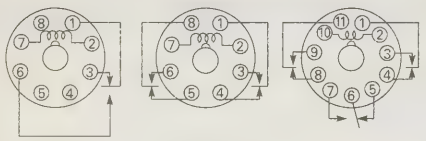
KA/KAP GENERAL PURPOSE RELAYS

KA/KAP Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
Open Style Relays					
KA-5AY -24	24	85	2VA	SPDT	5•*
-120	120	2,250			
KA-5AG -120	120	2,250	2VA	SPDT	10•*
KA-5DG -6	6	32.1	1.2W	SPDT	10•*
-12	12	120			
-24	24	472			
-110	110	10,000			
KA-11AY -6	6	6	2VA	DPDT	5•*
-24	24	85			
-120	120	2,250			
KA-11AG -120	120	2,250	2VA	DPDT	10•*
KA-11DY -12	12	120	1.2W	DPDT	5•*
KA-11DG -12	12	120	1.2W	DPDT	10•*
-24	24	472			
-110	110	10,000			
KA-14AY -120	120	2,250	2VA	3PDT	5•*
KA-14AG -120	120	2,250	2VA	3PDT	10•*
KA-14DG -12	12	120	1.2W	3PDT	10•*
-24	24	472			
-110	110	10,000			
Enclosed Relays					
KAP-5AG -120	120	2,250	2VA	SPDT	10•*
KAP-5DG -24	24	472	1.2W	SPDT	10•*
KAP-11AY -24	24	85	2VA	DPDT	5•*
-120	120	2,250			
KAP-11AG -24	24	85	2VA	DPDT	10•*
-120	120	2,250			
KAP-11DY -12	12	120	1.2W	DPDT	5•*
-24	24	472			
-110	110	10,000			
KAP-11DG -24	24	472	1.2W	DPDT	10•*
-110	110	10,000			
KAP-14AY -120	120	2,250	2VA	3PDT	5•*
KAP-14AG -120	120	2,250	2VA	3PDT	10•*
KAP-14DY -24	24	472	1.2W	3PDT	5•*
KAP-14DG -12	12	120	1.2W	3PDT	10•*
-24	24	472			

KA**P**-5DG-24 "P" denotes polycarbonate cover with octal-style plug. See KRPA/KRP section (p. 27) for sockets.
KAP-5**A**G-24 "A" denotes AC coil.
KAP-5**D**G-24 "D" denotes DC coil.
KA-5**A**Y-24 "Y" denotes Ag contacts.
KA-5**A**G-24 "G" denotes AgCdO contacts.

Note: Open-style KA relays mount via a #6-32 threaded stud and a locating tab on .438 (11.1) centers. Tab requires .165 (4.2) dia. clearance hole.
Enclosed KAP relays have a seated height of 2.281 (57.94) and are 1.531 (38.9) w x 1.437 (36.5) d.

KAP WIRING DIAGRAMS (Bottom View)



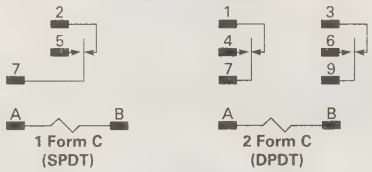
1 Form C (SPDT) 2 Form C (DPDT) 3 Form C (3PDT)

KUHP POWER RELAYS

KUHP Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
KUHP-5A51 -24	24	72	2.7VA	SPDT	30•*
-120	120	1,700			
KUHP-5AT1 -120	120	1,700	2.7VA	SPDT	30•*
KUHP-5D51 -12	12	120	1.2W	SPDT	30•*
-24	24	472			
KUHP-5DT1 -12	12	120	1.2W	SPDT	30•*
-24	24	472			
KUHP-11A51-24	24	72	2.7VA	DPDT	20•*
KUHP-11AT1-120	120	1,700	2.7VA	DPDT	20•*
KUHP-11D51-12	12	120	1.2W	DPDT	20•*
-24	24	472			
KUHP-11DT1-12	12	120	1.2W	DPDT	30•*
-24	24	472			

KUHP-11**A**51-24 "A" denotes AC coil.
KUHP-11**D**51-24 "D" denotes DC coil.
KUHP-11A**5**1-120 "5" denotes side mtg. brackets. Mounts on 2.5 (63.5) centers.
KUHP-11A**T**1-120 "T" denotes top mtg. brackets. Mounts on 1.875 (47.6) centers.

WIRING DIAGRAMS (Bottom View)



1 Form C (SPDT) 2 Form C (DPDT)

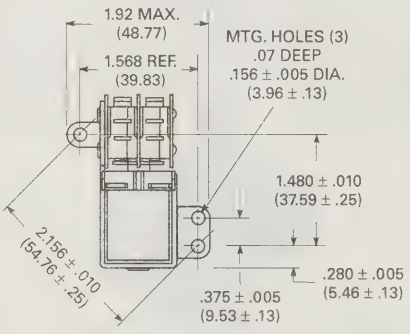
S86/S87 POWER RELAYS

S86/S87 Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
S86R5A1B1D1 -120	120	800	4.0VA	SPDT	20•*
S87R5A2B1D1 -24	24	32	4.0VA	SPDT	20•*
-120	120	800			
-240	120	3,200			
S87R5D2B1D1 -12	12	50	2.9W	SPDT	20•*
-24	24	200			
S86R11A1B1D1-120	120	800	4.0VA	DPDT	20•*
S87R11A2B1D1-24	24	32	4.0VA	DPDT	20•*
-120	120	800			
-240	120	3,200			
S87R11D2B1D1-24	24	128	4.5W	DPDT	20•*

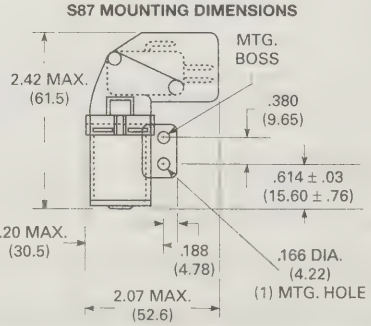
S86R5**A**1B1D1-120 "A" denotes AC coil.
S87R5**D**2B1D1-24 "D" denotes DC coil.

S86 and S87 have identical electrical specifications, but their mounting dimensions and terminal locations differ.

S86 MOUNTING DIMENSIONS



S87 MOUNTING DIMENSIONS



PM POWER RELAYS

PM Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
PM-17AY -24	24	5	14VA	4PDT	25•*
-120	120	120			
-240	240	587			
PM-17DY -12	12	33	4.4W	4PDT	25•*
-24	24	132			
-110	110	2,760			
PMT-17DY -24	24	132	4.4W	4PDT	25•*

PM-17DY-24 "PM" denotes screw terminal type.
PMT-17DY-24 "PMT" denotes .25 (6.35) quick connect terminal type.

Mount via one front keyhole and two rear channel slots for #8-32 screws. Back holes are located .937 (23.8) from cover center line. Front hole is located 4.125 (104.77) from back holes on cover center line.

OPTIONAL DUST COVERS

Metal dust cover has a sheet metal base with knockouts for 0.5 (13) dia. conduit and a cover fitted with two screws. Dimensions are 3.81 x 5.31 x 3.81 (96.8 x 134.9 x 96.8). Mounts via three #10 holes. Back holes are located .937 (23.8) from center line. Front hole is located 4.125 (104.77) from back holes on cover center line.
35D227

Plastic dust cover covers the relay's contact and coil assembly, but leaves terminals exposed for wiring convenience. Dimensions, when mounted on relay, are 2.657 x 3.394 x 2.719 (67.49 x 86.21 x 69.06). Relay mounting is unaltered.
35D203

PRD POWER RELAYS

PRD Part Number	Coil Input	Coil Res. in Ohms	Coil Nom. Power	Contacts Arrang.	Contacts Amp Rating
PRD-1AY0 -24	24	12	9.8VA	SPST-NO	25•*
-120	120	290			
PRD-3AY0 -24	24	12	9.8VA	SPST-NO-DM	25•*
-120	120	290			
-240	240	1,200			
PRD-3AG0 -120	120	290	9.8VA	SPST-NO-DM	30•*
PRD-3DY0 -12	12	71	2W	SPST-NO-DM	25•*
-24	24	288			
-110	110	6,050			
PRD-3DG0 -24	24	288	2W	SPST-NO-DM	30•*
PRD-5AY0 -12	12	3.2	9.8VA	SPDT	25•*
-24	24	12			
-120	120	290			
-240	240	1,200			
PRD-5DY0 -12	12	71	2W	SPDT	25•*
-24	24	288			
-110	110	6,050			
PRD-7AY0 -24	24	12	9.8VA	DPST-NO	25•*
-120	120	290			
-208	208	850			
-240	240	1,200			
PRD-7AG0 -120	120	290	9.8VA	DPST-NO	30•*
PRD-7DY0 -12	12	71	2W	DPST-NO	25•*
-24	24	288			
-110	110	6,050			
PRD-7DG0 -24	24	288	2W	DPST-NO	30•*
PRD-11AY0 -24	24	12	9.8VA	DPDT	25•*
-120	120	290			
-240	240	1,200			
-480	480	4,500			
PRD-11AG0 -24	24	12	9.8VA	DPDT	30•*
-120	120	290			
-240	240	1,200			
PRD-11DY0 -12	12	71	2W	DPDT	25•*
-24	24	288			
-48	48	1,150			
-110	110	6,050			
PRD-11DG0 -12	12	71	2W	DPDT	30•*
-24	24	288			
Model with SPDT Auxiliary Switch					
PRDA-11AYA -24	24	12	9.8VA	DPDT+SPDT Aux.Sw.	25•*
-120	120	290			
PRDA-11AGA -120	120	290	9.8VA	DPDT+SPDT Aux.Sw.	30•*

PRD Data Continues on the Next Page.

PRD POWER RELAYS (Cont'd.)

PRD Part Number	Coil: Input	Coil: Res. in Ohms	Coil: Nom. Power	Contacts: Arrang.	Contacts: Amp Rating
Model with Magnetic Blowouts for Heavy DC Loads					
PRD-3DH0 -24	24	288	2W	SPST-NO-DM	20•*
PRD-11AH0 -120	120	290	9.8VA	DPDT	20•*
PRD-11DH0 -12 -24 -110	12 24 110	71 288 6,050	2W	DPDT	20•*
PRD-11DJ0 -24	24	288	2W	DPDT	20•*

Codes "G" & "J" denote AgCdO contacts.
Codes "Y" & "H" denote Ag contacts.

All mount via two .187 (4.75) holes on 1.875 (47.6) centers.

OPTIONAL DUST COVER

Metal dust cover has a sheet metal base with knockouts for 0.5 (13) dia. conduit and a cover fitted with two screws. Dimensions are 3.38 x 5.31 x 3.13 (85.9 x 134.9 x 79.5). Mounts via three #10 holes. Back holes are located .937 (23.8) from center line. Front hole is located 4.125 (104.77) from back holes on cover center line. Will not accept aux. switch types. **35D013**

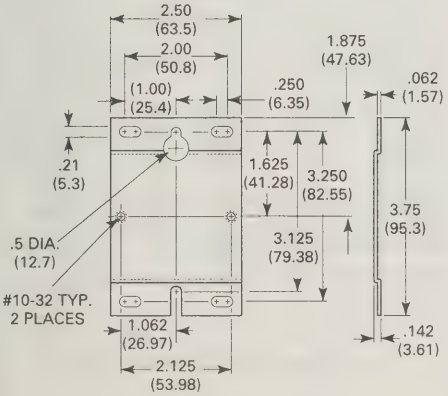
P25 CONTACTORS

P25 Part Number (AC Coil Models)	Coil: Input	Coil: Inrush VA (Max.)	Coil: Sealed VA (Max.)	Contacts: Arrang.	Contacts: Amp Rating
P25P42A12P1 -120 -240	120 240†	40	10	3PST-NO-DM	25•*◊
P25P42A22P1 -120 -240	120 240†	40	10	3PST-NO-DM	25•*◊
Part Number (DC Coil Models)	**Input**	**Res. in Ohms**	**Max. Power (W)**	**Arrang.**	**Amp Rating**
P25P42D22P1 -12 -24	12 24	34 133	4.8	3PST-NO-DM	25•*◊

† Coil is 208/240VAC.

P25P42**A**22P1-240 "A" denotes AC coil.
P25P42**D**22P1-12 "D" denotes DC coil.
P25P42A**1**2P1-240 "1" denotes models which mount via two slots on 2.125 (53.98) centers.
P25P42A**2**2P1-240 "2" denotes models which mount via an attached universal mounting plate.

MOUNTING PLATE FOOTPRINT (Mounting Style 2)

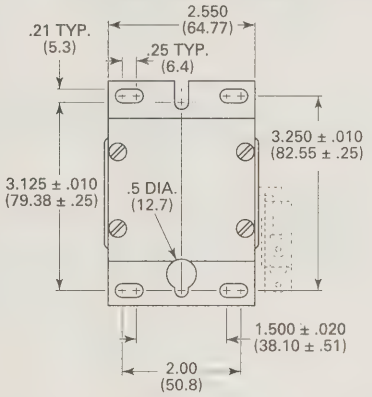


P30/P40 CONTACTORS

P30/P40 Part Number (AC Coil Models)	Coil: Input	Coil: Inrush VA (Max.)	Coil: Sealed VA (Max.)	Contacts: Arrang.	Contacts: Amp Rating
P30P42A12P1 -120	120	92	12	3PST-NO-DM	30•*◊
P30P47A12P1 -120	120	92	12	4PST-NO-DM	30•*◊
P40P42A12P1 -24 -120 -240	24 120 240	92	12	3PST-NO-DM	40•*◊
P40C42A12D1 -120	120	92	12	3PST-NO-DM + Aux. Switch	40•*◊
Part Number (DC Coil Models)	**Input**	**Res. in Ohms**	**Max. Power (W)**	**Arrang.**	**Amp Rating**
P30P42D12P1 -24	24	84	7.5	3PST-NO-DM	30•*◊
P40P42D12P1 -24	24	84	7.5	3PST-NO-DM	40•*◊
P30P47D12P1 -24	24	84	7.5	4PST-NO-DM	30•*◊

P30P42**A**12P1-120 "A" denotes AC coil.
P30P42**D**12P1-24 "D" denotes DC coil.

MOUNTING PLATE FOOTPRINT



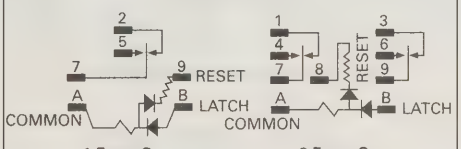
KUL LATCHING RELAYS

KUL Part Number	Coil: Input	Coil: Res. in Ohms	Coil: Nom. Power	Contacts: Arrang.	Contacts: Amp Rating
KUL-5A15S -120	120	3,700	–	SPDT	10•*
KUL-11A15S -24 -120	24 120	176 3,700	–	DPDT	10•*
KUL-11D15D -12 -24	12 24	90 350	1.65W	DPDT	10•*
KUL-11D15S -12 -24	12 24	120 472	1.2W	DPDT	10•*

KUL-11**A**15S-24 "A" denotes AC coil.
KUL-11**D**15S-24 "D" denotes DC coil.
KUL-11D15**D**-24 "D" denotes dual coil.
KUL-11D15**S**-24 "S" denotes single coil.
For sockets see KUP section (p. 25).

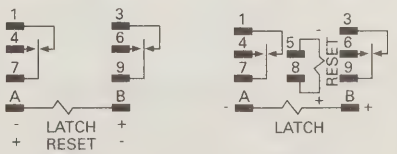
WIRING DIAGRAMS (BOTTOM VIEWS)

AC COIL



1 Form C (SPDT) **2 Form C (DPDT)**

DC SINGLE COIL **DC DUAL COIL**



2 Form C (DPDT) **2 Form C (DPDT)**

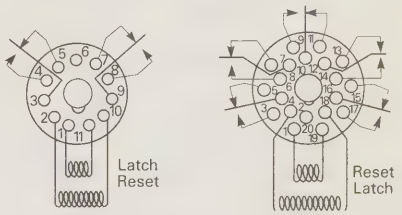
Note: Contact positions shown are the result of the "RESET" coil having been energized last.

KB/KBP LATCHING RELAYS

KB/KBP Part Number	Coil: Input	Coil: Res. in Ohms	Coil: Nom. Power	Contacts: Arrang.	Contacts: Amp Rating
Open-Style Relays					
KB-17AY -120	120	1,030	5VA	4PDT	5•*
KB-17AG -120	120	1,030	5VA	4PDT	10
KB-17DG -12	12	52	2.7W	4PDT	10
Enclosed Relays					
KBP-11A -120	120	1,030	5VA	DPDT	5•
KBP-11AG -120	120	1,030	5VA	DPDT	10•
KBP-11DG -24 -110	24 110	230 4560	2.7W 2.7W	DPDT DPDT	10• 10•
KBP-20AG -120	120	700	7.8VA	5PDT	10•

KB-17AY-120 "KB" denotes open-style relay with two .156 (3.96) mtg. holes on 1.375 (34.9) centers.
KBP-11A-120 "KBP" denotes enclosed relay with plug-in base
KB-17**A**Y-120 "A" denotes AC coil.
KB-17**D**Y-12 "D" denotes DC coil.

KBP WIRING DIAGRAMS (BOTTOM VIEWS)



KBP 11 **KBP20**

Note: Shown with reset coil energized last.

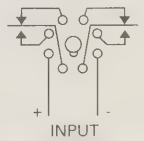
S89/S90 IMPULSE RELAYS

S89/S90 Part Number	Coil: Input	Coil: Res. in Ohms	Coil: Nom. Power	Contacts: Arrang.	Contacts: Amp Rating
S89 Relays (Open Style)					
S89R5ABD1 -24 -120	24 120	8.7 260	9VA	SPDT	15•*
S89R5DBD1 -12	12	22.5	6.33W	SPDT	15•*
S89R11AAC1 -24 -120	24 120	8.7 260	9VA	DPDT	15•*
S89R11ABD1 -24 -120	24 120	8.7 260	9VA	DPDT	15•*
S89R11DAC1 -6 -12 -24	6 12 24	5.8 22.5 92	6.33W	DPDT	15•*
S89R11DBD1 -12 -24	12 24	22.5 92	6.33W	DPDT	15•*
S89 Relays (Enclosed)					
S89R11APP1 -120	120	260	9VA	DPDT	10
S90 Relays (Open Style)					
S90R5ABD1 -120	120	260	9VA	SPDT	20•*
S90R11ABD1 -24 -120	24 120	8.7 260	9VA	DPDT	20•*

S89R11A**AC1**-24 "AC1" denotes .187 (4.75) quick connects.
S89R11A**BD1**-24 "BD1" denotes .250 (6.35) quick connects.
S89R11A**PP1**-120 "PP1" denotes enclosed relay with octal-type plug. See KRPA/KRP section (p. 27) for sockets.
S89R5**A**BD1-120 "A" denotes AC coil.
S89R5**D**BD1-12 "D" denotes DC coil.

Note: Open style relays mount via two #8-32 tapped holes on 1.844 (46.8) centers.

ENCLOSED S89 WIRING DIAGRAM (BOTTOM VIEW)



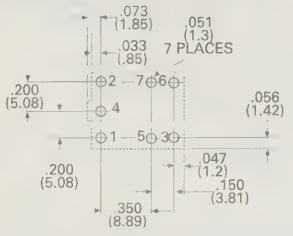
• Denotes UL
* Denotes CSA ◊ Denotes TUV

VKM AUTOMOTIVE RELAYS

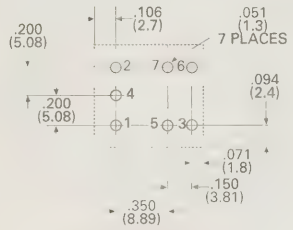
VKM Part Number	Coil: Input (VDC)	Coil: Res. in Ohms	Coil: Nom. Power in W	Contacts: Arrang.	Contacts: Amp Rating
Open Style Relays					
VKM-186F11-K01	12	130	1.11	SPST-NO-DM	2 x 10
Sealed Relays					
VKM-25F11-K01	12	130	1.11	SPDT	10
VKM-286F11-K01	12	130	1.11	SPST-NO-DM	2 x 10

VKM-25F**1**1-K01 "1" denotes AgNi 20 contacts.
VKM-25F**2**1-K01 "2" denotes AgNi 0.15 contacts.

P.C. BOARD LAYOUTS (BOTTOM VIEWS)

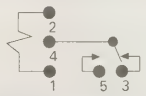


Open Models

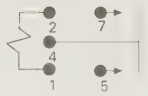


Enclosed Models

WIRING DIAGRAMS (BOTTOM VIEWS)



1 Form C
(SPDT)



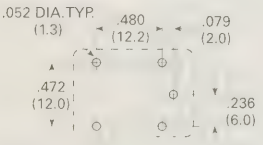
1 Form U
(SPST-NO-DM)

Only necessary terminals are present on single throw models.

T72J/K/M AUTOMOTIVE RELAYS

T72J/K/M Part Number	Coil: Input (VDC)	Coil: Res. in Ohms	Coil: Nom. Power in mW	Contacts: Arrang.	Contacts: Amp Rating
T72J5D121-12	12	400	360	SPDT	10
T72K5D121-12	12	225	640	SPDT	10
T72M5D121-12	12	180	800	SPDT	20

P.C. BOARD LAYOUT



WIRING DIAGRAM (BOTTOM VIEW)

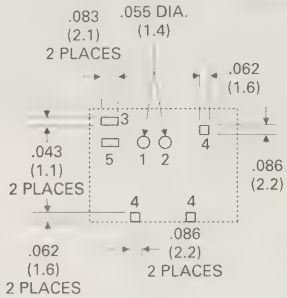
(SPDT)

VKP AUTOMOTIVE RELAYS

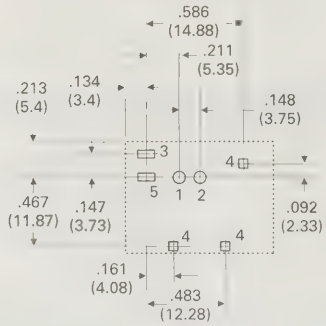
VKP Part Number	Coil: Input (VDC)	Coil: Res. in Ohms	Coil: Nom. Power in W	Contacts: Arrang.	Contacts: Amp Rating
VKP-11F32	12	90	1.6	SPST-NO	40
VKP-11F42	12	90	1.6	SPST-NO	40
VKP-15F42	12	90	1.6	SPDT	40
VKP-35F42	12	90	1.6	SPDT	40

VKP-**1**5F42 "1" denotes open relay.
VKP-**3**5F42 "3" denotes sealed relay.
VKP-11F**3**2 "3" denotes PdCu contacts.
VKP-11F**4**2 "4" denotes AgNi 0.15 contacts.

P.C. BOARD LAYOUT (BOTTOM VIEWS)

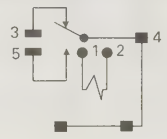


Center-to-Center



Hole Size

WIRING DIAGRAM (BOTTOM VIEW)

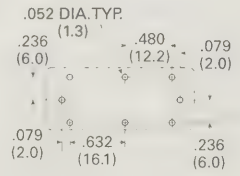


Only necessary terminals are present on single throw models.

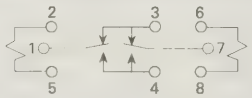
V2R AUTOMOTIVE RELAY

V2R Part Number	Coil: Input (VDC)	Coil: Res. in Ohms	Coil: Nom. Power in W	Contacts: Arrang.	Contacts: Amp Rating
V2R-1001	12	150	0.93	2xSPDT (H-bridge)	20

P.C. BOARD LAYOUT (BOTTOM VIEW)



WIRING DIAGRAM (BOTTOM VIEW)

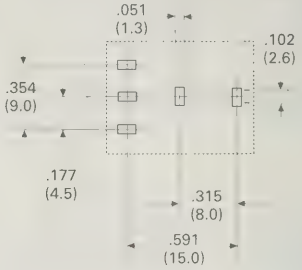


VFM AUTOMOTIVE RELAYS

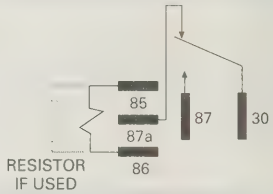
VFM Part Number	Coil: Input (VDC)	Coil: Res. in Ohms	Coil: Nom. Power in W	Contacts: Arrang.	Contacts: Amp Rating
Printed Circuit Board Relays					
VFM-15F12-K01	12	97	1.5	SPDT	15

VFM-15F**1**2-K01 "1" denotes AgNi 20 contacts.

P.C. BOARD LAYOUT (BOTTOM VIEW)



WIRING DIAGRAM (BOTTOM VIEW)

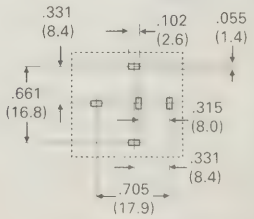


VF4 AUTOMOTIVE RELAYS

VF4 Part Number	Coil: Input (VDC)	Coil: Res. in Ohms	Coil: Nom. Power in W	Contacts: Arrang.	Contacts: Amp Rating
Relays with Dust Cover					
VF4-11F11	12	90	1.6	SPST-NO	40
VF4-11F13	12	90	1.6	SPST-NO	40
VF4-11F13-C01	12	90	1.6	SPST-NO	40
VF4-15F11	12	90	1.6	SPDT	40
VF4-15F11-S01	12	90	1.81		
VF4-15H11	24	360	1.6		
VF4-15F13	12	90	1.6	SPDT	40
Relays with Dust Cover & Metal Mtg. Bracket					
VF4-41F11	12	90	1.6	SPST-NO	40
VF4-45F11	12	90	1.6	SPDT	40
Relays with Shrouded Dust Cover & Metal Mtg. Bracket					
VF4-55F11-S01	12	90	1.81	SPDT	40
Relay with Weatherproof Cover & Metal Mtg. Bracket					
VF4-65F11	12	90	1.6	SPDT	40
Relays with Dust Cover & Molded Mtg. Bracket					
VF4-81F11	12	90	1.6	SPST-NO	40
VF4-85F11	12	90	1.6	SPDT	40

VF4-75F**1**1 "1" denotes quick connect terminals.
VF4-75F**2** "2" denotes clinch type P.C. terminals.
VF4-75F**3** "3" denotes P.C. board terminals.
VF4-15F11-**S01** "S01" denotes 680 ohm coil suppression resistor in parallel with relay coil.
VF4-11F13-**C01** "C01" denotes epoxy sealed unit.

P.C. BOARD LAYOUTS (BOTTOM VIEWS)

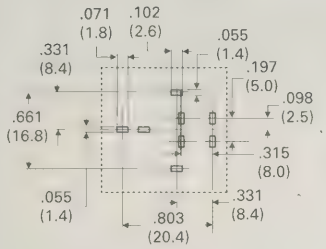


Type 3 P.C. Terminals

VF4 Data Continues on the Next Page.

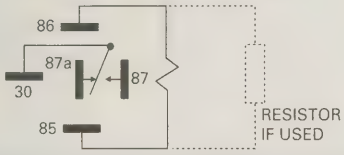
VF4 AUTOMOTIVE RELAYS (Cont'd.)

P.C. BOARD LAYOUTS (BOTTOM VIEWS)



Type 2 Clinch P.C. Terminals

WIRING DIAGRAM (BOTTOM VIEW)



Only necessary terminals are present on single throw models.

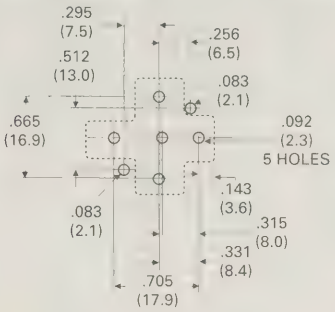
SOCKET/CONNECTORS/TERMINALS

Printed circuit board socket is available for use with VF4 quick connect relays. **VCF4-1000**

VF4 Data Continues in the Next Column.

VF4 AUTOMOTIVE RELAYS (Cont'd.)

SOCKET P.C. BOARD LAYOUT (BOTTOM VIEW)



Wiring harness style connector is available for use with VF4 quick connect relays. Crimp terminals for use with connector must be ordered separately (see table below). **VCF4-1001**

CRIMP TERMINALS FOR USE WITH VCF4-1001

Part No.	Wire AWG	1 Form A Qty. Required	1 Form C Qty. Required
26A1349A	12-16	4	5
26A1349B	14-18	4	5

Bracket mount wiring harness style connector is available for use with VF4 quick connect relays. Crimp terminals for use with connector must be ordered separately (see table below). **VCF4-1002**

CRIMP TERMINALS FOR USE WITH VCF4-1002

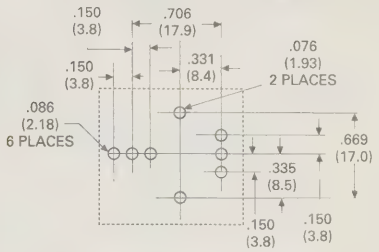
Part No.	Wire AWG	1 Form A Qty. Required	1 Form C Qty. Required
26A1348A	18-20	4	5
26A1348B	14-16	4	5
26A1348C	10-12	4	5

VF7 AUTOMOTIVE RELAYS

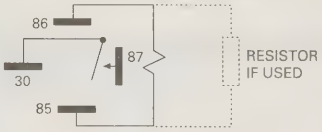
VF7 Part Number	Coil Input (VDC)	Coil Res. in Ohms	Coil Nom. Power in W	Contacts Arrang.	Contacts Amp Rating
Relays with Dust Cover					
VF7-11F11	12	72	2.0	SPST-NO	70
VF7-11F12	12	72	2.0	SPST-NO	70
Relays with Dust Cover & Metal Mtg. Bracket					
VF7-41F11	12	72	2.0	SPST-NO	70

VF7-11F**1**1 "1" denotes quick connect terminals.
VF7-11F**2**2 "2" denotes P.C. board terminals.

P.C. BOARD LAYOUT (BOTTOM VIEW)



WIRING DIAGRAM (BOTTOM VIEW)



CONNECTOR/TERMINALS

Wiring harness style connector is available for use with VF7 quick connect relays. Crimp terminals for use with connector must be ordered separately (see table below). **VCF7-1000**

CRIMP TERMINALS FOR USE WITH VCF7-1000

Part No.	Wire AWG	Qty. Required	Function
26A1350A	10-12	2	Load Connection
26A1350B	6-10	2	Load Connection
26A1349B	14-18	2	Coil Connection

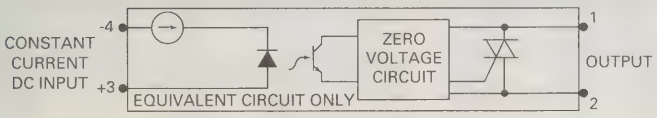
SSRT SOLID STATE RELAYS

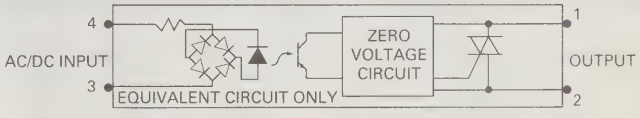
Part Number	Input Type	Input Min. V	Input Max. V	Input Typical Input Current	Output Type	Output Min. V	Output Max. V	Output Min. mA	Output Max. A ‡	Heatsink Rating	Output Current Derates From. . .	Blocking V Peak	1 Cycle Surge	Switching Type
SSRT-240A10•»	AC/DC	90	280	15mA	AC	24	280	50	10	3.0°C/W	10A @ 20°C to 6A @ 80°C	±600	100A	Zero
SSRT-240A25•»	AC/DC	90	280	15mA	AC	24	280	50	25	2.0°C/W	25A @ 40°C to 18A @ 80°C	±600	200A	Zero
SSRT-240D10•»	DC	3	32	15mA	AC	24	280	50	10	3.0°C/W	10A @ 20°C to 6A @ 80°C	±600	100A	Zero
SSRT-240D25•»	DC	3	32	15mA	AC	24	280	50	25	2.0°C/W	25A @ 40°C to 18A @ 80°C	±600	200A	Zero

‡ Maximum output current rating is for relay properly mounted to a heatsink of the thermal resistance listed under "Heatsink Rating" in the chart above.

SSRT relays mount via two .17 (4.32) mtg. holes on 1.87 (47.5) centers.

OPERATING DIAGRAMS





• Denotes UL » Denotes UL Rec. Com./Canada

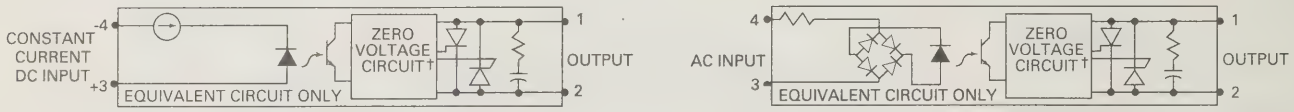
SSR SOLID STATE RELAYS

Part Number	Input Type	Input Min. V	Input Max. V	Input Typical Input Current	Output Type	Output Min. V	Output Max. V	Output Min. mA	Output Max. A ‡	Heatsink Rating	Output Current Derates From. . .	Blocking V Peak	1 Cycle Surge	Switching Type
SSR-240A25•»	AC/DC	90	280	15mA	AC	24	280	50	25	2.0°C/W	25A @ 40°C to 18A @ 80°C	±600	250A	Zero
SSR-240A50•»	AC/DC	90	280	15mA	AC	24	280	50	50	1.0°C/W	50A @ 50°C to 38A @ 80°C	±600	600A	Zero
SSR-240D25•»	DC	3	32	15mA	AC	24	280	50	25	2.0°C/W	25A @ 40°C to 18A @ 80°C	±600	250A	Zero
SSR-240D25R•»	DC	3.5	26	15mA	AC	24	280	50	25	2.0°C/W	25A @ 40°C to 18A @ 80°C	±600	250A	Random
SSR-240D50•»	DC	3	32	15mA	AC	24	280	50	50	1.0°C/W	50A @ 50°C to 38A @ 80°C	±600	600A	Zero
SSR-480D125•»	DC	3	32	15mA	AC	48	530	50	125	0.33°C/W	125A @ 20°C to 75A @ 80°C	±1,200	1,400A	Zero

‡ Maximum output current rating is for relay properly mounted to a heatsink of the thermal resistance listed under "Heatsink Rating" in the chart above.

SSR relays mount via two .17 (4.32) mtg. holes on 1.87 (47.5) centers.

OPERATING DIAGRAMS



† Random Turn-on Units have a Random Turn-on circuit instead of Zero Voltage Circuit

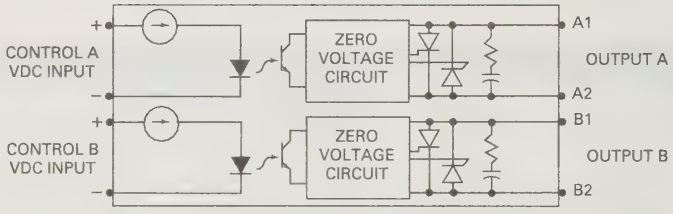
SSRD DUAL OUTPUT SECTION SOLID STATE RELAY

Part Number	Input per Section Type	Input Min. V	Input Max. V	Input Typical Input Current	Output per Section Type	Output Min. V	Output Max. V	Output Min. mA	Output Max. A ‡	Heatsink Rating	Output Current† Derates From. . .	Blocking V Peak	1 Cycle Surge	Switching Type
SSRD-240D25•»	DC	3	32	15mA @ 5VDC	AC	24	280	50	25	1°C/W	50A @ 50°C to 32A @ 80°C	±600	300A	Zero
SSRD-240D40•»	DC	3	32	15mA @ 5VDC	AC	24	280	50	40	0.5°C/W	80A @ 40°C to 47A @ 80°C	±600	500A	Zero

‡ Maximum output current rating is for relay properly mounted to a heatsink of the thermal resistance listed under "Heatsink Rating" in the chart above.
† Output current derating values given are totals for the relay with both sections "ON."

SSRD relays mount via two .17 (4.32) mtg. holes on 1.87 (47.5) centers.

OPERATING DIAGRAM



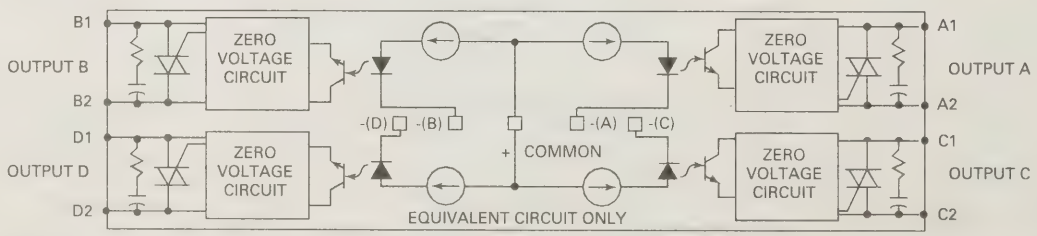
SSRQ QUAD OUTPUT SECTION SOLID STATE RELAY

Part Number	Input per Section Type	Input Min. V	Input Max. V	Input Typical Input Current	Output per Section Type	Output Min. V	Output Max. V	Output Min. mA	Output Max. A‡	Heatsink Rating	Output Current† Derates From. . .	Blocking V Peak	1 Cycle Surge	Switching Type
SSRQ-240D20•»	DC	3	32	15mA @ 5VDC	AC	24	280	50	20	0.5°C/W	80A @ 30°C to 45A @ 80°C	±600	200A	Zero

‡ Maximum output current rating is for relay properly mounted to a heatsink of the thermal resistance listed under "Heatsink Rating" in the chart above.
† Output current derating values given are totals for the relay with all four sections "ON."

SSRQ relays mount via two .17 (4.32) mtg. holes on 1.87 (47.5) centers.

OPERATING DIAGRAM

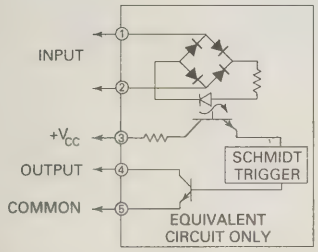


IAC/OAC/IDC/ODC INPUT/OUTPUT MODULES

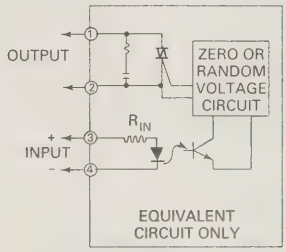
Part Number	System Voltage	Input Type	Input Min. V	Input Max. V	Input Max. mA	Output Type	Output Min. V	Output Max. V	Output Max. V Peak	Output Min. mA	Output Max. A	Output Current Derates From. . .	Switching Type
AC Input Modules (Also operate from DC input)													
IAC-5•*	5	AC/DC	90	140	6	DC	–	30	–	–	0.05	–	–
IAC-5A•*	5	AC/DC	180	280	6	DC	–	30	–	–	0.05	–	–
IAC-5E•*	5	AC/DC	18	36	10	DC	–	30	–	–	0.05	–	–
IAC-15•*	15	AC/DC	90	140	6	DC	–	30	–	–	0.05	–	–
IAC-24•*	24	AC/DC	90	140	6	DC	–	30	–	–	0.05	–	–
IAC-24E•*	24	AC/DC	18	36	10	DC	–	30	–	–	0.05	–	–
AC Output Modules													
OAC-5•*	5	DC	3	8	20	AC	24	280	±600	50	3.0	3.0A @ 40°C to 680mA @ 80°C	Zero
OAC-5A•*	5	DC	3	8	20	AC	24	280	±600	50	3.0	3.0A @ 40°C to 680mA @ 80°C	Zero
OAC-5H•*	5	DC	3	8	20	AC	24	280	±600	50	5.0	5.0A @ 30°C to 1.7A @ 80°C	Zero
OAC-15•*	15	DC	9	18	16	AC	24	280	±600	50	3.0	3.0A @ 40°C to 680mA @ 80°C	Zero
OAC-15A•*	15	DC	9	18	16	AC	24	280	±600	50	3.0	3.0A @ 40°C to 680mA @ 80°C	Zero
OAC-24•*	24	DC	18	32	13	AC	24	280	±600	50	3.0	3.0A @ 40°C to 680mA @ 80°C	Zero
OAC-24A•*	24	DC	18	32	13	AC	24	280	±600	50	3.0	3.0A @ 40°C to 680mA @ 80°C	Zero
DC Input Modules													
IDC-5•*	5	DC	±3.3	±32	34	DC	–	30	–	–	0.05	–	–
IDC-5F•*	5	DC	±4	±32	68	DC	–	30	–	–	0.05	–	–
IDC-15•*	15	DC	±3.3	±32	34	DC	–	30	–	–	0.05	–	–
IDC-24•*	24	DC	±3.3	±32	34	DC	–	30	–	–	0.05	–	–
DC Output Modules													
ODC-5•*	5	DC	3	8	18	DC	3	60	–	10	3.0	3.0A @ 40°C to 1A @ 80°C	–
ODC-5A•*	5	DC	3	8	18	DC	3	250	–	10	1.0	1.0A @ 40°C to 0A @ 60°C	–
ODC-15•*	15	DC	9	18	16	DC	3	60	–	10	3.0	3.0A @ 40°C to 1A @ 80°C	–
ODC-15A•*	15	DC	9	18	16	DC	10	250	–	10	1.0	1.0A @ 40°C to 0A @ 60°C	–
ODC-24•*	24	DC	18	32	13	DC	3	60	–	10	3.0	3.0A @ 40°C to 1A @ 80°C	–
ODC-24A•*	24	DC	18	32	13	DC	3	250	–	10	1.0	1.0A @ 40°C to 0A @ 60°C	–

IDC-_F models are fast turn-on (0.2 ms Max.), fast turn-off (1 ms Max.) types. Other IDC models have turn-on and turn-off times of 5 ms Max.

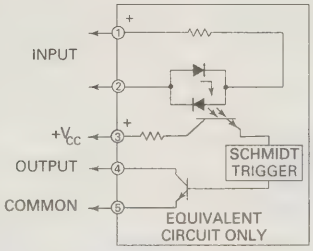
OPERATING DIAGRAMS



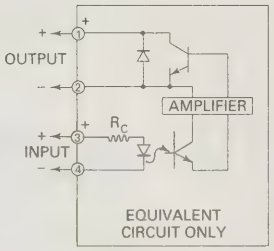
IAC



OAC



IDC



ODC

2IO MOUNTING BOARDS FOR INPUT/OUTPUT MODULES

Part Number	Module Positions	Logic Terminals	Logic Type	Logic Voltage	Dimensions ‡
2IO4A•*	4	Screws	Negative True (active low)	Single	3.5 x 4.5 x 2.2 (88.9 x 114.3 x 55.8)
2IO4B•*	4	Screws	Negative or Positive True (active low or high)	Multiple	3.5 x 4.5 x 2.2 (88.9 x 114.3 x 55.8)
2IO8•*	8	26- or 50-pin card edge connector	Negative True (active low)	Single	3.5 x 8.4 x 2.2 (88.9 x 213.4 x 55.8)
2IO16•*	16	50-pin card edge connector	Negative True (active low)	Single	3.5 x 14.5 x 2.2 (88.9 x 368.3 x 55.8)
2IO16A•*	16	Screws	Negative True (active low)	Single	3.5 x 14.1 x 2.2 (88.9 x 358.1 x 55.8)
2IO16B•*	16	Screws	Negative or Positive True (active low or high)	Multiple	3.5 x 14.1 x 2.2 (88.9 x 358.1 x 55.8)
2IO16C•*	16	Screws	Negative True (active low)	Multiple	3.5 x 14.1 x 2.2 (88.9 x 358.1 x 55.8)
2IO24•*	24	50-pin card edge connector	Negative True (active low)	Single	4.5 x 18.75 x 2.2 (114.3 x 476.3 x 55.8)

‡ Dimensions are stated as width x length x height measured to the top of mounted modules.

IACM/OACM/IDCM/ODCM SLIM LINE INPUT/OUTPUT MODULES

Part Number	System Voltage	Input Type	Input Min. V	Input Max. V	Input Max. mA	Output Type	Output Min. V	Output Max. V	Output Max. V Peak	Output Min. mA	Output Max. A	Output Current Derates From. . .	Switching Type
AC Input Modules (Also operate from DC input)													
IACM-5•*	5	AC/DC	90	140	6	DC	–	30	–	–	0.1	–	–
IACM-5A•*	5	AC/DC	180	280	6	DC	–	30	–	–	0.1	–	–
AC Output Modules													
OACM-5•*	5	DC	3	8	20	AC	24	280	±600	50	3.0	3.0A @ 40°C to 680mA @ 80°C	Zero
OACM-5H•*	5	DC	3	8	20	AC	24	280	±600	50	5.0	5.0A @ 30°C to 1.7A @ 80°C	Zero
OACM-24H•*	24	DC	18	32	13	AC	24	280	±600	50	5.0	5.0A @ 30°C to 1.7A @ 80°C	Zero
OACM-U•*	5	DC	3	15	44	AC	24	280	±600	50	3.0	3.0A @ 40°C to 680mA @ 80°C	Zero
OACM-UH•*	5	DC	3	15	44	AC	24	280	±600	50	5.0	5.0A @ 30°C to 1.7A @ 80°C	Zero
DC Input Modules													
IDCM-5•*	5	DC	±3.3	±32	34	DC	–	30	–	–	0.05	–	–
DC Output Modules													
ODCM-5•*	5	DC	3	8	18	DC	3	60	–	10	3.0	3.0A @ 40°C to 1A @ 80°C	–
ODCM-UA•*	5	DC	3	15	44	DC	3	250		10	1.0	1.0A @ 40°C to 0A @ 60°C	–

IDCM-_F models are fast turn-on (0.2 ms Max.), fast turn-off (1 ms Max.) types. Other IDCM models have turn-on and turn-off times of 5 ms Max.

OPERATING DIAGRAMS - Same as IAC/OAC/IDC/ODC. See above.

2IOM MOUNTING BOARDS FOR SLIM LINE INPUT/OUTPUT MODULES

Part Number	Module Positions	Logic Terminals	Logic Type	Logic Voltage	Dimensions ‡	Hold Down Kit
2IOM16•*	16	50-pin card edge connector	Negative True (active low)	Single	3.5 x 10.4 x 2.16 (88.9 x 264.2 x 54.8)	SSA-0003
2IOM24•*	24	50-pin card edge connector	Negative True (active low)	Single	6.0 x 8.4 x 2.16 (152.4 x 213.4 x 54.8)	SSA-0004
2IOM24D•*	24	50-pin straight header	Negative True (active low)	Single	6.0 x 8.4 x 2.16 (152.4 x 213.4 x 54.8)	SSA-0004

‡ Dimensions are stated as width x length x height measured to the top of fastener for optional hold down cover.

OPTIONAL HOLD DOWN COVER KITS – SSA-0003 and SSA-0004

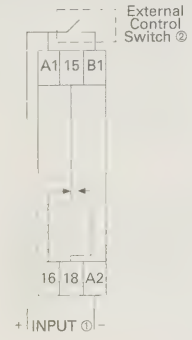
Hold down cover kits include a clear plastic cover to securely hold modules to the board. Hardware necessary to attach the cover to the board is included. See chart above for kit usage.

• Denotes UL
* Denotes CSA

CND DIN MOUNT TIME DELAY RELAY

Input Voltage	Time Range	Type of Adjustment	CND Part Number
Programmable, Multifunction Model			
Universal 24-240 VAC/VDC	0.5 S-100 M in 5 modes	Potentiometer for Time adjust Switches for Range & Function	CND

WIRING DIAGRAM (BOTTOM VIEW)



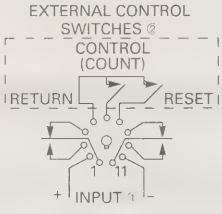
① Note input polarity for DC operation. For most reliable operation on AC, connect high side to "+" and low side to "-".
IMPORTANT: A dry circuit switch is recommended. A "dry circuit" switch is one rated to reliably switch currents of less than 50mA. Use of a switch rated for other than dry circuit may result in failure of the time delay relay to function properly.

CNT TIME DELAY RELAYS / COUNTERS

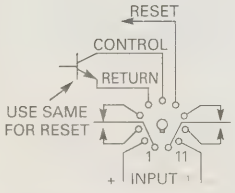
Input Voltage	Time Range	Type of Adjustment	Wiring Dia.	CNT Part Number
Programmable, Multifunction Models				
Universal 24-240 VAC/VDC	0.1 S-9,990 H in 7 ranges	Thumbwheel Switches	1	CNT-35-96•*
12VDC				CNT-35-26•*
120VAC				CNT-35-76•*

OPTIONAL MOUNTING CLIP:
Ratchet-fit clip, part number SSA-24C667, slides onto CNT from behind to secure CNT in panel mount applications.

WIRING DIAGRAM (BOTTOM VIEW)
Pins numbered clockwise from keyway



Dia. 1



OPTIONAL SOLIDSTATE INTERFACE

① Note input polarity for DC operation. For most reliable operation on AC, connect high side to "+."

② Important: A dry circuit switch is recommended for proper operation. A "dry circuit" switch is one rated to reliably switch currents of less than 50mA.

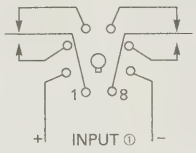
For available sockets see KRPA/KRP section (p. 27).

CNS TIME DELAY RELAYS

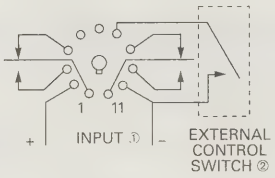
Input Voltage	Time Range	Type of Adjustment	Wiring Dia.	CNS Part Number
Programmable, 4-Function Models with 8-Pin Bases				
Universal 24-240 VAC/VDC	0.1 S-100 M in 6 ranges	Knob & DIP Switches	1	CNS-35-92•*
120VAC				CNS-35-72•*
Programmable, 8-Function Models with 11-Pin Bases				
Universal 24-240 VAC/VDC	0.1 S-100 M in 6 ranges	Knob & DIP Switches	2	CNS-35-96•*
120VAC				CNS-35-76•*

OPTIONAL MOUNTING CLIP:
Ratchet-fit clip, part number SSA-24C667, slides onto CNS from behind to secure CNS in panel mount applications.

WIRING DIAGRAMS (BOTTOM VIEWS)
Pins numbered clockwise from keyway



Dia. 1



Dia. 2

① Note input polarity for DC operation. For most reliable operation on AC, connect high side to "+."

② Important:. A 50 millisecond minimum switch closure is required. A dry circuit switch is recommended for proper operation. A "dry circuit" switch is one rated to reliably switch currents of less than 50mA.

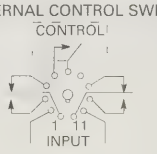
For available sockets see KRPA/KRP section (p. 27).

CNM5 TIME DELAY RELAYS

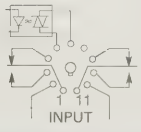
Input Voltage	Time Range	Type of Adjustment	Wiring Dia.	CNM5 Part Number
Programmable, Multifunction Model				
120VAC	0.1 S-9,990 H in 7 ranges	Thumbwheel Switches	1	CNM5•*

OPTIONAL MOUNTING CLIP:
Ratchet-fit clip, part number SSA-24C667, slides onto CNM5 from behind to secure CNM5 in panel mount applications.

WIRING DIAGRAM (BOTTOM VIEW)
Pins numbered clockwise from keyway



Dia. 1



OPTIONAL SOLID STATE INTERFACE

① IMPORTANT: A dry circuit switch is recommended. A "dry circuit" switch is one rated to reliably switch currents of less than 50mA. Use of a switch rated for other than dry circuit may result in failure of the time delay relay to function properly.

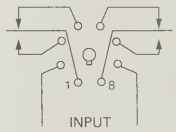
For available sockets see KRPA/KRP section (p. 27).

CN1 TIME DELAY RELAYS

Input Voltage	Time Range	Type of Adjustment	Wiring Dia.	CN1 Part Number
Delay On Operate Model				
120VAC	0.1 S-9,990 H in 7 ranges	Thumbwheel Switches	1	CN1•*

OPTIONAL MOUNTING CLIP:
Ratchet-fit clip, part number SSA-24C667, slides onto CN1 from behind to secure CN1 in panel mount applications.

WIRING DIAGRAM (BOTTOM VIEW)
Pins numbered clockwise from keyway



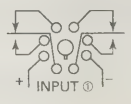
Dia. 1

For available sockets see KRPA/KRP section (p. 27).

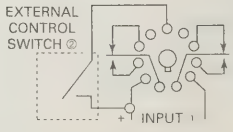
CG TIME DELAY RELAYS

Input Voltage	Time Range	Type of Adjustment	Wiring Dia.	CG Part Number
Delay On Operate Models				
120VAC	1-10M 5-50 M	Knob	1	CGB-38-70010M•* CGB-38-70050M•*
Delay On Release Models				
120VAC	1-10 M 5-50 M	Knob	2	CGB-38-78010M•* CGB-38-78050M•*
Interval On Models				
120VAC	1-10 S 1-10 M	Knob	1	CGB-38-79010S•* CGB-38-79010M•*
24VDC	1-10 M	Knob	1	CGD-38-39010M•*

WIRING DIAGRAMS (BOTTOM VIEWS)
Pins numbered clockwise from keyway



Dia. 1



Dia. 2

① Note input polarity for DC operation. For most reliable operation on AC, connect high side to "+."

② Important: If control switch is closed when power is applied, relay will immediately energize. A 50 millisecond minimum switch closure is required. A dry circuit switch is recommended for proper operation. A "dry circuit" switch is one rated to reliably switch currents of less than 50mA.

For available sockets see KRPA/KRP section (p. 27).

• Denotes UL
* Denotes CSA

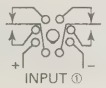
CD TIME DELAY RELAYS

Input Voltage	Time Range	Type of Adjustment	Wiring Dia.	CD Part Number
Delay On Operate Models				
24VAC	1-10 S	Knob	1	CDB-38-30001•*
120VAC	0.1-1 S 0.1-5 S 0.1-10 S 0.3-30 S 0.6-60 S 1.8-180 S	Knob	1	CDB-38-70001•* CDB-38-70002•* CDB-38-70003•* CDB-38-70006•* CDB-38-70004•* CDB-38-70005•*
120VAC	1 S	Fixed	1	CDA-38-70012•*
120VAC	0.1-5 S 0.1-10 S	Resistor	2	CDF-38-70002•* CDF-38-70003•*
24VDC	0.1-10 S 0.6-60 S 1.8-180 S	Knob	1	CDD-38-30003•* CDD-38-30004•* CDD-38-30005•*
48VDC	0.6-60 S	Knob	1	CDD-38-40002•*
Delay On Release Models				
120VAC	0.1-1 S 0.1-5 S 0.1-10 S 0.3-30 S 0.6-60 S 1.8-180 S	Knob	3	CDB-38-70016•* CDB-38-70091•* CDB-38-70014•* CDB-38-70092•* CDB-38-70012•* CDB-38-70015•*
120VAC	1 S	Fixed	3	CDA-38-70025•*
24VDC	0.1-10 S 0.6-60 S 1.8-180 S	Knob	3	CDD-38-30014•* CDD-38-30012•* CDD-38-30008•*

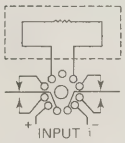
CDF EXTERNAL RESISTOR VALUES

Factory Set Time Delay (No Resistor)	Approx. Resistance to Reduce Delay 50%	Short Circuit Time Delay
5 S	200K Ohms	0.1 S
10 S	400K Ohms	0.1 S

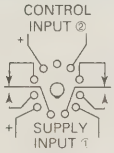
WIRING DIAGRAMS (BOTTOM VIEWS)
Pins numbered clockwise from keyway



Dia. 1



Dia. 2



Dia. 3

① Note input polarity for DC operation. For most reliable operation on AC, connect high side to "+."

② Important: If control voltage is present when supply voltage is applied, the relay will immediately energize.

For available sockets see KRPA/KRP section (p. 27).

CK TIME DELAY RELAYS

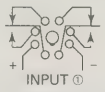
Input Voltage	Time Range	Type of Adjustment	Wiring Dia.	CK Part Number
Delay On Operate Models				
24VAC	0.1-10 S	Knob	1	CKB-38-30010•*
120VAC	0.1-10 S 0.6-60 S 1.2-120 S	Knob	1	CKB-38-70010•* CKB-38-70060•* CKB-38-70120•*
120VAC	0.1-10 S	Resistor	2	CKF-38-70010•*
12VDC	0.1-10 S	Knob	1	CKD-38-20010•*
Delay On Release Models				
120VAC	0.1-10 S 0.6-60 S	Knob	3	CKB-38-78010•* CKB-38-78060•*
120VAC	0.1-10S	Resistor	4	CKF-38-78010•*
Delay On Dropout Models				
24VAC	0.1-10 S 0.6-60 S	Knob	1	CKB-38-37010•* CKB-38-37060•*
120VAC	0.1-10 S 0.6-60 S 1.2-120 S	Knob	1	CKB-38-77010•* CKB-38-77060•* CKB-38-77120•*
Interval On Model				
120VAC	0.1-10 S	Knob	3	CKB-38-79010•*

CK Data Continues in the Next Column.

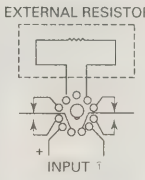
CK TIME DELAY RELAYS (Cont'd)

CKF EXTERNAL RESISTOR VALUES
Short circuit provides minimum (0.1 S) time delay. 200K resistor (approx.) provides maximum (10 S) time delay.

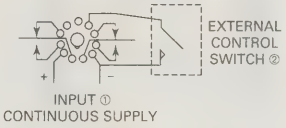
WIRING DIAGRAMS (BOTTOM VIEWS)
Pins numbered clockwise from keyway



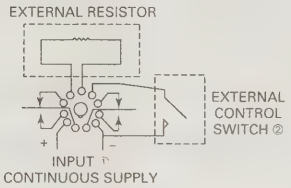
Dia. 1



Dia.2



Dia. 3



Dia. 4

① Note input polarity for DC operation. For most reliable operation on AC, connect high side to "+."

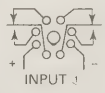
② Important: If control switch is closed when power is applied, relay will immediately energize. A 50 millisecond minimum switch closure is required. A dry circuit switch is recommended for proper operation. A "dry circuit" switch is one rated to reliably switch currents of less than 50mA.

For available sockets see KRPA/KRP section (p. 27).

CH TIME DELAY RELAYS

Input Voltage	Time Range	Type of Adjustment	Wiring Dia.	CH Part Number
Delay On Operate Models				
24VAC	1-10 S 1-180 S	Knob	1	CHB-38-30001•* CHB-38-30003•*
120VAC	1-10 S 1-60 S 1-180 S	Knob	1	CHB-38-70001•* CHB-38-70002•* CHB-38-70003•*
120VAC	10 S	Fixed	1	CHA-38-70001•*
240VAC	1-10 S	Knob	1	CHB-38-80001•*
24VDC	1-10 S 1-180 S	Knob	1	CHD-38-30001•* CHD-38-30003•*
Delay On Release Models				
24VAC	1-10 S	Knob	3	CHB-38-30011•*
120VAC	1-10 S 1-60 S 1-180 S	Knob	3	CHB-38-70011•* CHB-38-70012•* CHB-38-70013•*
24VDC	1-180 S	Knob	3	CHD-38-30013•*
Interval On Models				
120VAC	1-10 S 1-60 S 1-180 S	Knob	1	CHB-38-70021•* CHB-38-70022•* CHB-38-70023•*
24VDC	1-10 S	Knob	1	CHD-38-30021•*

WIRING DIAGRAMS (BOTTOM VIEWS)
Pins numbered clockwise from keyway



Dia. 1

CH Data Continues in the Next Column.

CH TIME DELAY RELAYS (Cont'd)

Dia. 3

① Note input polarity for DC operation. For most reliable operation on AC, connect high side to "+."

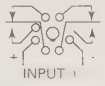
② Important: A 50 millisecond minimum switch closure is required. A dry circuit switch is recommended for proper operation. A "dry circuit" switch is one rated to reliably switch currents of less than 50mA.

For available sockets see KRPA/KRP section (p. 27).

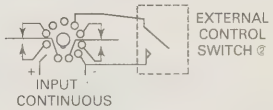
CB TIME DELAY RELAYS

Input Voltage	Time Range	Type of Adjustment	Wiring Dia.	CB Part Number
Delay On Operate Models				
24VAC	0.1-10 S 1.8-180 S	Knob	1	CB-1041B-30•* CB-1042B-30•*
120VAC	0.1-1 S 0.1-5 S 0.1-10 S 0.6-60 S 1.8-180 S 1-10 M 10-100 M	Knob	1	CB-1001B-70•* CB-1002B-70•* CB-1003B-70•* CB-1004B-70•* CB-1005B-70•* CB-1006B-70•* CB-1007B-70•*
12VDC	0.1-10 S	Knob	1	CB-1047D-20•*
24VDC	0.1-1 S 0.1-10 S 0.6-60 S	Knob	1	CB-1026D-30•* CB-1028D-30•* CB-1029D-30•*
Delay On Release Models				
24VAC	0.1-10 S 1.8-180 S	Knob	3	CB-1045B-38•* CB-1046B-38•*
120VAC	0.1-10 S 0.1-10 S 0.6-60 S 1.8-180 S	Knob	3 5 3 3	CB-1021B-78•* CB-1022B-78•* CB-1023B-78•* CB-1024B-78•*
24VDC	0.1-10 S 1.8-180 S	Knob	3	CB-1038D-38•* CB-1039D-38•*
Interval On Models				
24VAC	0.1-10 S	Knob	1	CB-1043B-39•*
120VAC	0.1-5 S 0.1-10 S 0.6-60 S 1-10 M	Knob	1 1 1 1	CB-1011B-79•* CB-1014B-79•* CB-1016B-79•* CB-1018B-79•*
24VDC	0.1-5 S 1.8-180 S	Knob	1	CB-1034D-39•* CB-1036D-39•*

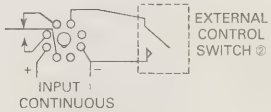
WIRING DIAGRAMS (BOTTOM VIEWS)
Pins numbered clockwise from keyway



Dia. 1



Dia. 3



Dia. 5

① Note input polarity for DC operation. For most reliable operation on AC, connect high side to "+."

② Important: If control switch is closed when power is applied, relay will immediately energize. A 50 millisecond minimum switch closure is required. A dry circuit switch is recommended for proper operation. A "dry circuit" switch is one rated to reliably switch currents of less than 50mA.

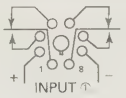
For available sockets see KRPA/KRP section (p. 27).

• Denotes UL
* Denotes CSA

CR TIME DELAY RELAYS

Input Voltage	Time Range	Type of Adjustment	Wiring Dia.	CR Part Number
Recycle Models				
120VAC	0.1-10 S 0.3-30 S 0.6-60 S	Knob	1	CRB-48-70010•* CRB-48-70030•* CRB-48-70060•*
24VDC	1.8-180 S	Knob	1	CRD-48-30180•*

WIRING DIAGRAM (BOTTOM VIEW)
Pins numbered clockwise from keyway



Dia. 1

① Note input polarity for DC operation. For most reliable operation on AC, connect high side to "+."

For available sockets see KRPA/KRP section (p. 27).

CL/CU TIME DELAY RELAYS

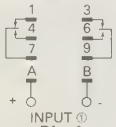
Input Voltage	Time Range	Type of Adjustment	Wiring Dia.	CL/CU Part Number
Delay On Operate Models				
Types With No Timing Cycle Interrupt Transfer				
24VAC	0.1-10 S	Knob	1	CLB-51-30010•*
120VAC	0.1-10 S 0.3-30 S 1.2-120 S	Knob	1 1 1	CLB-51-70010•* CLB-51-70030•* CLB-51-70120•*
120VAC	0.1-10 S 0.1-10 S	Resistor	2	CLF-41-70010•* CLF-42-70010•*
24VDC	0.1-10 S	Resistor	2	CLH-41-30010•*
Types Which May Momentarily Transfer Contacts If Timing Cycle Is Interrupted				
24VAC	10 S	Fixed	1	CUA-41-30010•*
24VAC	1-10 S	Resistor	2	CUF-41-30010•*
120VAC	1-10 S 1-30 S 1-60 S 1-120 S	Knob	1	CUB-51-70010•* CUB-51-70030•* CUB-51-70060•* CUB-51-70120•*
120VAC	1 S 3 S 5 S 10 S 10 S 120 S	Fixed	1	CUA-41-70001•* CUA-41-70003•* CUA-41-70005•* CUA-41-70010•* CUA-42-70010•* CUA-41-70120•*
120VAC	1-10 S 1-10 S 1-30 S 1-120 S 1-120 S	Resistor	2	CUF-41-70010•* CUF-42-70010•* CUF-41-70030•* CUF-41-70120•* CUF-42-70120•*
24VDC	1-10 S 1-10 S 1-120 S	Resistor	2	CUH-41-30010•* CUH-42-30010•* CUH-41-30120•*

CLF-**42**-70010 "42" denotes bracket mount case with two mounting slots on 2.5 (63.5) centers.
All Others All other models listed have a plain case for socket mounting. For sockets see KUP section (p. 26).

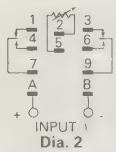
CLF/CLH/CUF/CUH EXTERNAL RESISTOR VALUES

Time Delay		Approximate Resistance	
CU	CL	AC Input	DC Input
1 S	0.1 S	Short	Short
10 S	10 S	200K Ohm	160K Ohm
1 S	0.3 S	Short	Short
30 S	30 S	600K Ohm	500K Ohm
1 S	1.2 S	Short	Short
120 S	120 S	2.4 Megohm	2.0 Megohm

WIRING DIAGRAMS (BOTTOM VIEWS)



Dia. 1



Dia. 2

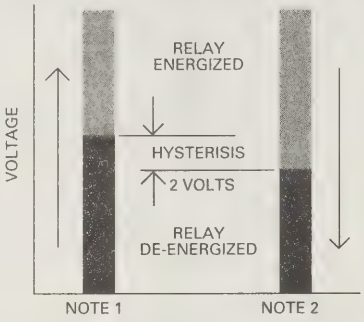
① Note input polarity for DC operation. For most reliable operation on AC, connect high side to "+."

CS VOLTAGE SENSORS

Voltage Type	Pick-Up Voltage	Drop-Out Voltage†	Max. Voltage	Part Number
Adjustable Pick-Up and Drop-Out Models				
AC (50/60 Hz.)	92-140	90-138	150	CSJ-38-70010•*
DC	20-30 40-58 92-140	18-28 38-56 90-138	40 60 150	CSL-38-30010•* CSL-38-40010•* CSL-38-60010•*
Fixed Pick-Up and Adjustable Drop-Out Models				
AC (50/60 Hz.)	105	90-103	140	CSJ-38-71010•*
DC	22	16-21	40	CSL-38-31010•*

† Actual max. drop-out voltage is the selected pick-up voltage less hysterisis voltage .

ADJUSTABLE VOLTAGE SENSOR OPERATIONS

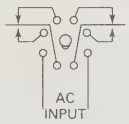


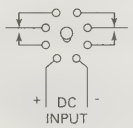
Note 1: As voltage increases, the relay will pick up at its selected point and remain energized while voltage is maintained at that level or higher.

Note 2: As voltage decreases, after pick up, the relay will drop out at its selected point.

Note 3: Minimum hysterisis, the voltage differential between pick-up and drop-out, is typically 2% of pick-up.

WIRING DIAGRAMS (BOTTOM VIEWS)
Pins numbered clockwise from keyway





For available sockets see KRPA/KRP section (p. 27).

SDAS-01 CURRENT SENSORS

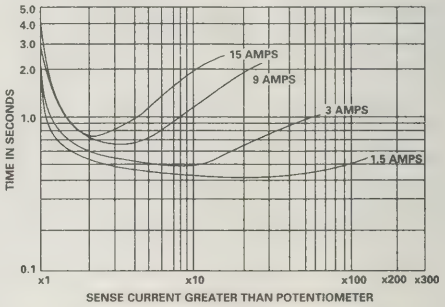
Part Number	Control Voltage (50/60 Hz. or DC ±10%)	Power Requirement
Overcurrent Sensor (1.5-15A AC Sense Range)		
SDAS-018Y2S1024	24V	1.7VA or 1W
Undercurrent Sensor (1.5-15A AC Sense Range)		
SDAS-017Y2S1024	24V	1.7VA or W

ADJUSTABLE CURRENT SENSOR OPERATIONS

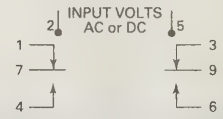
Overcurrent Sensor: Internal relay energizes when sense current exceeds the user-set level for longer than the built-in time delay allows (200ms min.). Actual delay is dependent upon the potentiometer setting and the magnitude of the overcurrent (see curves). The relay remains energized until sensor control voltage is removed, even if the overcurrent ceases to exist.

Undercurrent Sensor: Internal relay energizes when sense current drops below the user-set level for at least 350ms. The relay remains energized until sense current exceeds the potentiometer setting or sensor control voltage is removed. A 350ms delay after control voltage is applied allows line components to turn on.

TYPICAL OVERCURRENT TIME DELAY CURVES



WIRING DIAGRAM (BOTTOM VIEW)



For available sockets see KUP section (p. 26).

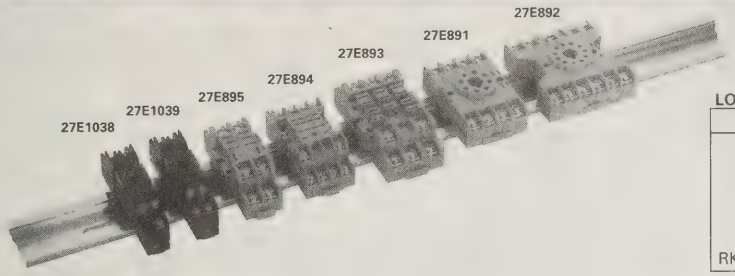
• Denotes UL
* Denotes CSA

ACCESSORIES

35D070 & 35D072 – "P" CASES

Clear polycarbonate cases for mounting rectifiers, capacitors, resistors or other components. Octal type termination. Measures 1.406 (35.71) x 1.406 (35.71) and seats 2.0 (51.0) high. 35D070 has an 8-pin plug. 37D072 has an 11-pin plug.

DIN RAIL MOUNT SCREW TERMINAL SOCKET TRACK MOUNTING SYSTEM

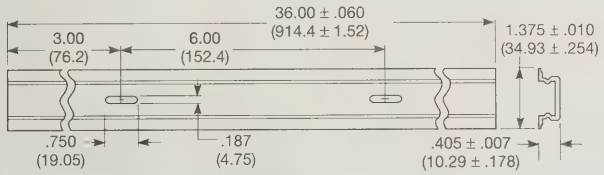


LOCATION OF DIN RAIL SOCKET DIMENSIONS

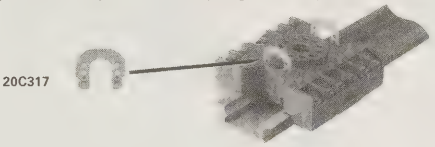
Typical Relay	Base	SocketPart Number	Page Number
KRPA (DPDT)	8-pin octal-type	27E891	27
KRPA (3PDT)	11-pin octal-type	27E892	27
KUP	11-blade square	27E893	26
KH	14-blade square	27E894	25
K10	8-blade square	27E895	25
RKS (code 1)	5-blade square	27E1038	21
RKS (codes 2,3 & 5)	8-blade square	27E1039	21

FEATURES
- Sockets mount on standard 32mm DIN track and P&B 24A110 track. Spring loaded integral clip holds sockets securely to the track. End clips can be used to further stabilize sockets on track.
- Small screwdriver can be used to release sockets from the track.
- All DIN sockets are shipped with two anchor clips for hold down springs. Hold down springs must be ordered separately. See Relay & Socket Usage Chart beginning on page 38.

24A110 – DIN RAIL STYLE MOUNTING TRACK
Mounting track is designed to accept snap-mount sockets, as well as all other P&B screw terminal sockets. Extruded aluminum track is shipped in three-foot (914) lengths with mounting holes on six-inch (152) centers. Track can be cut to shorter lengths or used end-to-end.

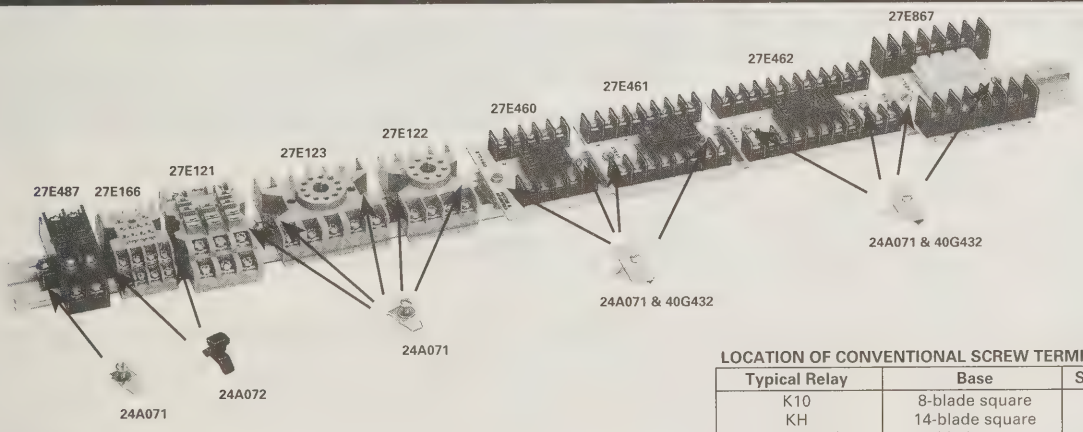


20C317 – ANCHOR CLIP
Steel anchor clip snaps into the body of the snap-mount socket and is used as an anchor point for relay hold-down spring. Two clips are shipped with each socket.



24A071 & 40G432 – END CLIP
24A071 steel mounting clip with one #6-32 screw .437 (11.1) long is used with 40G432 insulator to prevent sockets from moving sideways or sliding off the end of the track. Each part number must be ordered separately.

CONVENTIONAL SCREW TERMINAL SOCKET TRACK MOUNTING SYSTEM

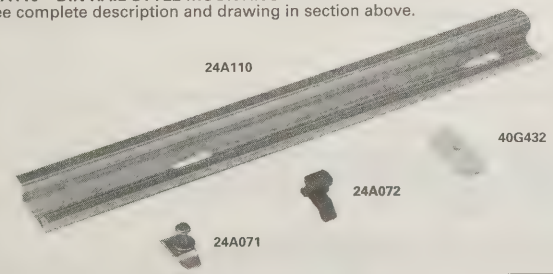


LOCATION OF CONVENTIONAL SCREW TERMINAL SOCKET DIMENSIONS

Typical Relay	Base	Socket Part Number	Page Number
K10	8-blade square	27E487	25
KH	14-blade square	27E166	24
KUP (3PDT)	11-blade square	27E121	26
KRPA (3PDT)	11-pin octal-type	27E123	27
KRPA (DPDT)	8-pin octal-type	27E122	27
R10 (DPDT)	10-blade square	27E460	24
R10 (4PDT)	16-blade square	27E461	24
R10 (6PDT)	22-blade square	27E462	24
KUP (4PDT)	14-blade square	27E867	26

FEATURES
- P&B DIN rail track accommodates a variety of sockets and relays. See Relay & Socket Usage Chart beginning on page 38.
- Various clips are available (must be ordered separately) to secure components to track.

24A110 – DIN RAIL STYLE MOUNTING TRACK
See complete description and drawing in section above.



24A071 – STEEL MOUNTING CLIP
24A071 steel mounting clip with one #6-32 screw .437 (11.1) long.

24A072 – PLASTIC MOUNTING CLIP
24A072 plastic twist mounting clip for 27E166, 27E122 and 27E123 sockets. Twist clip into track to hold socket in place, except when used on end of track. Use 24A071 on ends of track to lock first and last socket in place.

40G432 – PLASTIC INSULATOR
40G432 plastic insulator for track or surface mounting. Use with 27E460, 27E461, 27E462 and 27E867 sockets.

RELAY AND SOCKET USAGE CHART

RELAY	SOCKET	TERMINAL TYPE	HOLD-DOWN SPRING	NOTES	SOCKET PAGE	COMMENTS
CB	27E122	Screw	–	–	27	
(8-pin octal)	27E891	Screw	–	5	27	
CB	27E123	Screw	–	–	27	
(11-pin octal)	27E892	Screw	–	5	27	
CD	27E122	Screw	–	–	27	
(8-pin octal)	27E891	Screw	–	5	27	
CD	27E123	Screw	–	–	27	
(11-pin octal)	27E892	Screw	–	5	27	
CG	27E122	Screw	–	–	27	
(8-pin octal)	27E891	Screw	–	5	27	
CG	27E123	Screw	–	–	27	
(11-pin octal)	27E892	Screw	–	5	27	
CH	27E122	Screw	–	–	27	
(8-pin octal)	27E891	Screw	–	5	27	
CH	27E123	Screw	–	–	27	
(11-pin octal)	27E892	Screw	–	5	27	
CK	27E122	Screw	–	–	27	
(8-pin octal)	27E891	Screw	–	5	27	
CK	27E123	Screw	–	–	27	
(11-pin octal)	27E892	Screw	–	5	27	
CL-41	27E043	Solder	20C228 or 20C254	–	26	20C228 held in place by socket hold-down screw whereas 20C254 snaps into socket.
	27E046	PC	20C228 or 20C254	–	26	20C228 held in place by socket hold-down screw whereas 20C254 snaps into socket.
	27E067	QC & Solder	20C228 or 20C254	–	26	20C228 held in place by socket hold-down screw whereas 20C254 snaps into socket.
	27E121	Screw	20C314	–	26	Use 2 pieces 20C314 per socket.
	27E396	QC & Solder	20C254	–	26	
	27E893	Screw	20C318	5	26	Use 20C317 anchor clip for hold down spring (2 supplied per socket).
CL-51	27E043	Solder	20C247	–	26	20C247 held in place by socket hold-down screw.
	27E046	PC	20C247	–	26	20C247 held in place by socket hold-down screw.
	27E067	QC & Solder	20C247	–	26	20C247 held in place by socket hold-down screw.
	27E121	Screw	20C314	–	26	Use 2 pieces 20C314 per socket.
	27E396	QC & Solder	20C255	–	26	
	27E893	Screw	20C318	5	26	Use 20C317 anchor clip for hold down spring (2 supplied per socket).
CNS	27E122	Screw	–	–	27	
(8-pin octal)	27E891	Screw		5	27	
CNS	27E123	Screw	–	–	27	
(11-pin octal)	27E892	Screw		5	27	
CNT	27E123	Screw	–	–	27	
(11-pin octal)	27E892	Screw		5	27	
CR	27E122	Screw	–	–	27	
(8-pin octal)	27E891	Screw		5	27	
CS	27E122	Screw	–	–	27	
(8-pin octal)	27E891	Screw		5	27	
CU-41	27E043	Solder	20C228 or 20C254	–	26	20C228 held in place by socket hold-down screw whereas 20C254 snaps into socket.
	27E046	PC	20C228 or 20C254	–	26	20C228 held in place by socket hold-down screw whereas 20C254 snaps into socket.
	27E067	QC & Solder	20C228 or 20C254	–	26	20C228 held in place by socket hold-down screw whereas 20C254 snaps into socket.
	27E121	Screw	20C314	–	26	Use 2 pieces 20C314 per socket.
	27E396	QC & Solder	20C254	–	26	
	27E893	Screw	20C318	5	26	Use 20C317 anchor clip for hold down spring (2 supplied per socket).
CU-51	27E043	Solder	20C247	–	26	20C247 held in place by socket hold-down screw .
	27E046	PC	20C247	–	26	20C247 held in place by socket hold-down screw .
	27E067	QC & Solder	20C247	–	26	20C247 held in place by socket hold-down screw .
	27E121	Screw	20C314	–	26	Use 2 pieces 20C314 per socket.
	27E396	QC & Solder	20C255	–	26	
	27E893	Screw	20C318	5	26	Use 20C317 anchor clip for hold down spring (2 supplied per socket).
GLR	27E936	PC	20C423	–	21	Use with Code 1.
	27E937	PC	20C423	–	21	Use with Code 3 & 5.
	27E1038	Screw	20C423	5	21	Use with Code 1.
	27E1039	Screw	20C423	5	21	Use with Code 3 & 5.
IAC & IDC	–	–	–	–	–	Refer to page 33 for 2IO Series mounting board details.
IACM & IDCM	–	–	–	–	–	Refer to page 33 for 2IOM Series mounting board details.
K10	27E487	Screw	20C297	–	25	
	27E488	Solder	20C217	–	25	
	27E489	PC	20C217	–	25	
	27E895	Screw	20C297	5	25	Use 20C317 anchor clip for hold down spring (2 supplied per socket).
KBP	27E123	Screw	–	–	27	
(11-pin octal)	27E892	Screw	–	5	27	
KHA & KH	27E006	Solder	20C217	–	24	
	27E007	PC	20C217	–	24	
	27E023	PC	20C217	–	24	
	27E166	Screw	20C297	–	24	
	27E894	Screw	20C297	5	25	Use 20C317 anchor clip for hold down spring (2 supplied per socket).
KR-E (Sealed)	27E122	Screw	–	–	27	
(8-pin octal)	27E891	Screw	–	5	27	
KR-E (Sealed)	27E123	Screw	–	–	27	
(11-pin octal)	27E892	Screw	–	5	27	
KRP3-H	27E122	Screw	–	–	27	
(8-pin octal)	27E891	Screw	–	5	27	
KRPA & KRP	27E122	Screw	–	–	27	
(8-pin octal)	27E891	Screw	–	5	27	
KRPA & KRP	27E123	Screw	–	–	27	
(11-pin octal)	27E892	Screw	–	5	27	
KUEP,	27E043	Solder	20C228 or 20C254	–	26	20C228 held in place by socket hold-down screw whereas 20C254 snaps into socket.
KUGP, KUIP,	27E046	PC	20C228 or 20C254	–	26	20C228 held in place by socket hold-down screw whereas 20C254 snaps into socket.
KUMP & KUP	27E067	QC & Solder	20C228 or 20C254	–	26	20C228 held in place by socket hold-down screw whereas 20C254 snaps into socket.
[1-3 Poles	27E121	Screw	20C314	–	26	Use 2 pieces 20C314 per socket.
with .187 (4.75)	27E396	QC & Solder	20C254	–	26	
QC Terms.]	27E893	Screw	20C318	5	26	Use 20C317 anchor clip for hold down spring (2 supplied per socket).

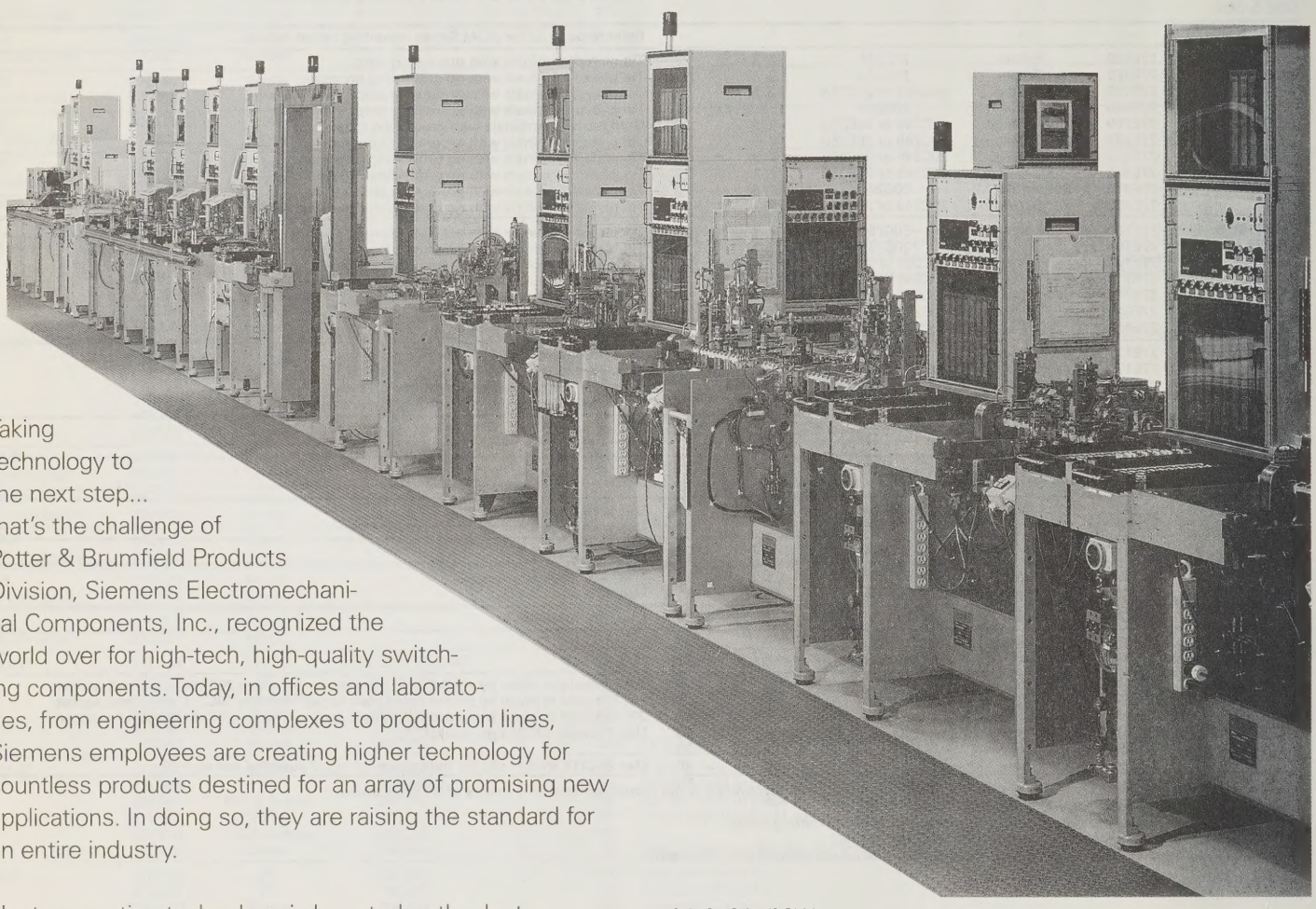
Relay And Socket Usage Chart Continues On Next Page

RELAY AND SOCKET USAGE CHART (CONTINUED)

RELAY	SOCKET	TERMINAL TYPE	HOLD-DOWN SPRING	NOTES	SOCKET PAGE	COMMENTS
KUL [1-3 Poles with .187 (4.75) QC Terms.]	27E043	Solder	20C247	–	26	20C247 held in place by socket hold-down screw.
	27E046	PC	20C247	–	26	20C247 held in place by socket hold-down screw.
	27E067	QC & Solder	20C247	–	26	20C247 held in place by socket hold-down screw.
	27E121	Screw	20C314	–	26	Use 2 pieces 20C314 per socket.
	27E396	QC & Solder	20C254	–	26	
	27E893	Screw	20C318	5	26	Use 20C317 anchor clip for hold down spring (2 supplied per socket).
KUP [4 pole with .110 (2.79) QC Terms.]	27E867	Screw	20C254	4	26	
OAC, OAT, ODC & ODT	–	–	–	–	–	Refer to page 33 for 2IO Series mounting board details.
OACM & ODCM	–	–	–	–	–	Refer to page 33 for 2IOM Series mounting board details.
R10, R10L & R10S (2 pole)	27E125	Solder	20C249	2, 3	23	Tin plated terminals with grounding strip.
	27E162	Solder	20C249	2, 3	23	Tin plated terminals with no grounding provision.
	27E128	PC Stag.	20C249 or 20C259	2, 3	23	Tin plated terminals with grounding strip.
	27E446	Solder	20C249	1, 2, 3	24	Tin plated terminals with grounding strip.
	27E709	PC Stag.	20C249 or 20C259	2, 3	23	Gold flashed terminals with grounding strip.
	27E193	PC Stag.	20C249 or 20C259	2, 3	23	Tin plated terminals with grounding terminal.
	27E212	PC Stag.	20C249 or 20C259	2, 3	23	Tin plated terminals with no grounding provision.
	27E342	PC In-line	20C249 or 20C259	2, 3	23	Tin plated terminals with no grounding provision.
	27E317	Solder/Bkt. Mt.	20C249	2, 3	23	Tin plated terminals with grounding strip.
	27E460	Screw	20C249 or 20C259	2, 3, 4	24	Tin plated terminals with no grounding provision.
R10, R10L & R10S (4 pole)	27E126	Solder	20C250	2, 3	23	Tin plated terminals with grounding strip.
	27E163	Solder	20C250	2, 3	23	Tin plated terminals with no grounding provision.
	27E194	PC Stag.	20C250 or 20C259	2, 3	23	Tin plated terminals with grounding terminal.
	27E213	PC Stag.	20C250 or 20C259	2, 3	23	Tin plated terminals with no grounding provision.
	27E714	PC Stag.	20C250 or 20C259	2, 3	23	Gold flashed terminals with no grounding provision.
	27E629	PC In-line	20C250 or 20C259	2, 3	23	Tin plated terminals with no grounding provision.
	27E461	Screw	20C250 or 20C259	2, 3, 4	24	Tin plated terminals with no grounding provision.
R10, R10L (6 pole)	27E127	Solder	20C251	3	23	Tin plated terminals with grounding strip.
	27E130	PC Stag.	20C251 or 20C259	3	23	Tin plated terminals with grounding strip.
	27E630	PC In-line	20C251 or 20C259	3	23	Tin plated terminals with no grounding provision.
	27E462	Screw	20C251 or 20C259	3, 4	24	Tin plated terminals with no grounding provision.
R10-T1 (8-pin octal)	27E122	Screw	–	–	27	
	27E891	Screw	–	5	27	
R10-T2 (11-pin octal)	27E123	Screw	–	–	27	
	27E892	Screw	–	5	27	
RKA/RKS	27E936	PC	20C330	-	21	Use with Code 1.
RKA	27E937	PC	20C330	-	21	Use with Code 2.
RKS	27E937	PC	20C330	-	21	Use with Code 3 & 5.
RKA/RKS	27E1038	Screw	20C330	5	21	Use with Code 1.
RKA	27E1039	Screw	20C330	5	21	Use with Code 2.
RKS	27E1039	Screw	20C330	5	21	Use with Code 3 & 5.
S89R11AAP (8-pin octal)	27E122	Screw	–	–	27	
	27E891	Screw	–	5	27	
SDAS-01	27E043	Solder	–	–	26	20C228 held in place by socket hold-down screw whereas 20C254 snaps into socket.
	27E046	PC	–	–	26	20C228 held in place by socket hold-down screw whereas 20C254 snaps into socket.
	27E067	QC & Solder	–	–	26	20C228 held in place by socket hold-down screw whereas 20C254 snaps into socket.
	27E121	Screw	20C314	–	26	Use 2 pieces 20C314 per socket.
	27E396	QC & Solder	–	–	26	
	27E893	Screw	–	5	26	Use 20C317 anchor clip for hold down spring (2 supplied per socket).

Note 1: Flange mount sockets pre-assembled on steel mounting plate. Grounding is not recommended for currents of 5A AC & above.
Note 2: Indicated hold-down springs do not work with R10S.
Note 3: On R10L series hold-down spring fits to the side of light emitting diode.
Note 4: Use 40G432 insulator or suitable insulator (2 per socket).
Note 5: Snap-mount relay sockets snap onto 24A110 mounting rail without extra hardware.

Progress through innovation



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Potter & Brumfield Products Division
200 S. Richland Creek Drive
Princeton, IN 47671-0001

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